Paper Technology

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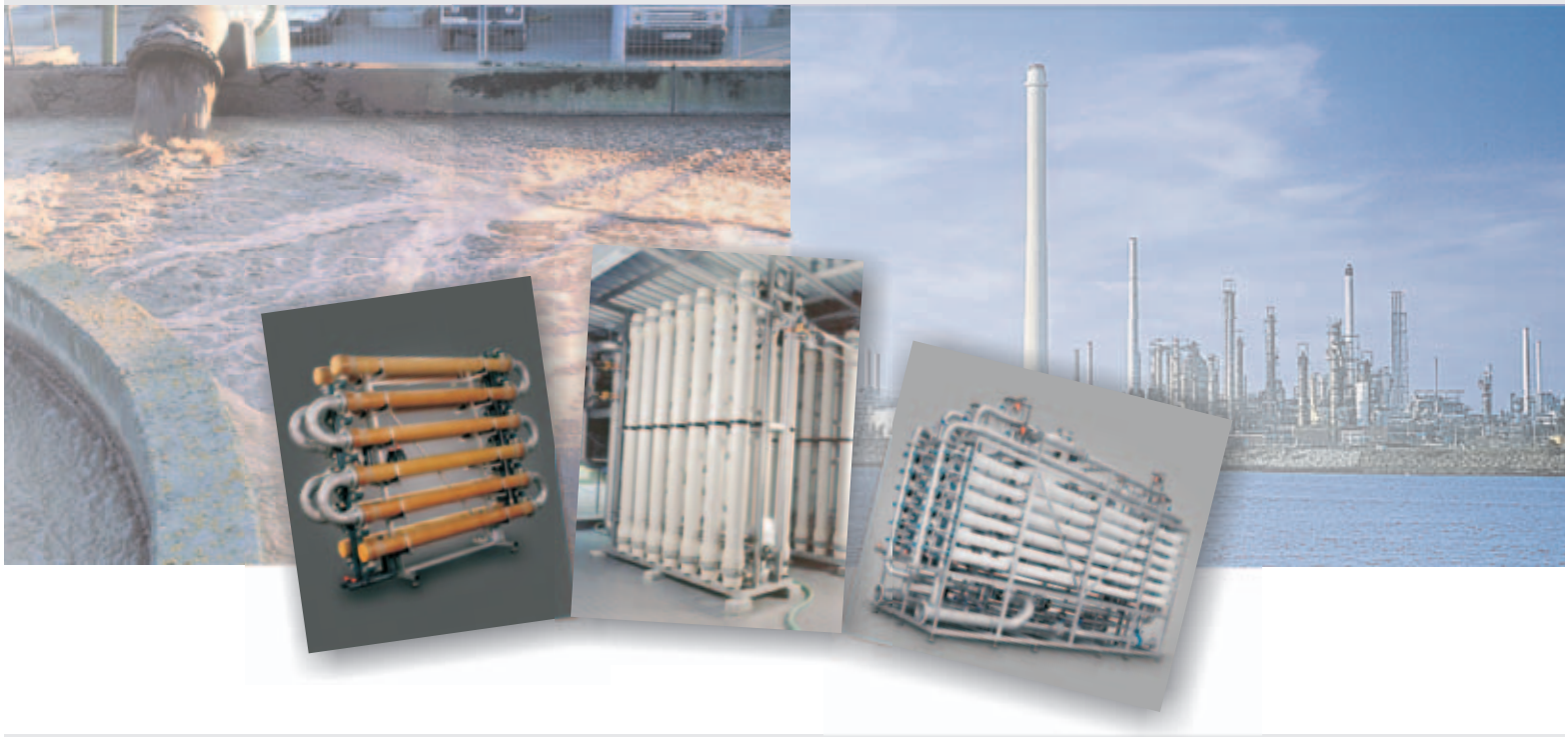

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features

FRONT COVER PICTURE

Attached on this month's front cover is a CD for John Crane Safematic product guide featuring all the products for Pulp and Paper industries. If your copy of the CD is not attached then please contact Gary Webb on 07711 650 660 or email gary.webb@johncrane.co.uk

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Comment

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A world class pulp and paper mill for Scotland

By M.E. Marley

'This will be a world class operation and a major competitor in the global pulp and paper market', says Ed Gillespie of the Cromatry project which is described on *pages 3 and 4*.

Mr Gillespie is chairman of Forscot, the company behind the project and he speaks with over 30 years of experience in the paper industry. He is also familiar with Scotland's potential for a major forest project — as chief executive of Scottish Enterprise Grampian he was project director for the 2001 feasibility study into the building of a new pulp mill in Scotland.

The current project, with its integrated pulp, paper and saw mills, is the most ambitious we have ever seen in the UK.

The sheer scale and integration of the Forscot project place it at the top of the world league in terms of synergies, efficiencies and economies of scale.

It is also located in one of Europe's 'few prime locations for forest industry investment', according to Robert Wilson, MD of Jaakko Poyry Consulting, UK, *see page 4*.

Scotland offers:

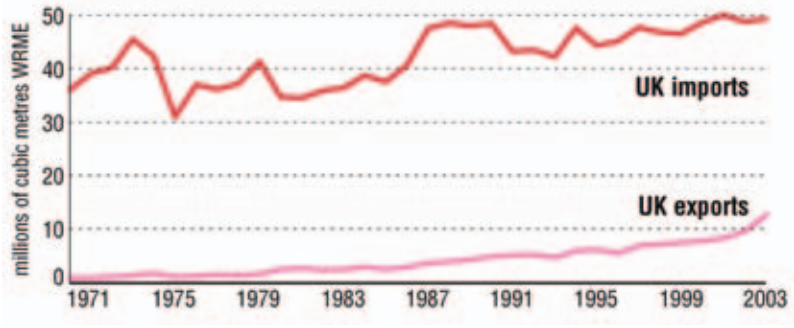
- An abundant and growing resource of pulpwood, a resource which has doubled over the last 15 years and is set to increase by another 66% by 2020.
- A local pulp wood which is the ideal raw material for papermaking. Sitka spruce is a white wood with a local regionous content and long, thin fibres. It produces the best mechanical pulp in the world.
- Easy access to markets for the end products. The table to the left shows that the UK is currently importing some 80% of forest product —wood, pulp, paper and panels.
- Prime industrial sites served by a good transport infrastructure. The Cromarty region, in which the new mills will be located, is an engineering and fabrication centre for the off shore oil industry.
- Deep harbours and water ways for exports and imports. Forscot products will be shipped out through Invergordon, a busy oil cargo port on the Cromarty Firth.

The mills will bring some 500 new jobs to Ross and Cromarty, a region in which traditional industries are in decline - the Nigg oil fabrication yard closed in 2000. It will also enable the region to add value to its substantial timber stocks. 'Forscot will be able to offer significantly better prices and longer term stability than is currently available to wood sellers in the market,' says Mr Gillespie.

UK imports/exports and consumption in 2004

millions of cubic metres WRME

	Imports					Exports	UK production	Apparent consumption
Year	Wood	Pulp	Panels	Paper	Total	Total		
1999	15.2	7.7	6.4	17.4	46.8	7.4	7.6	46.9
2000	17.0	8.3	7.1	16.5	48.9	7.7	7.6	48.8
2001	17.1	7.1	7.4	18.6	50.2	8.2	7.7	49.8
2002	18.1	7.2	8.3	15.5	49.1	9.5	7.6	47.2
2003	19.7	6.8	8.0	15.2	49.7	12.6	7.9	45.0



Key to table: **WRME** = wood raw material equivalent, softwood + hardwood, underbark. **UK production** is estimated from deliveries for Great Britain and Northern Ireland. **Apparent consumption:** = imports – exports + UK production; it excludes recycled wood and waste-paper of UK origin.
Source this table and tables on page 4 Forestry Commission: **www.forestry.gov.uk**

News

Integrated pulp, paper and saw mill project for North East Scotland

By M.E. Marley

World scale, pulp and paper mills are key components of the £1billion forest industry project which is being planned for North East Scotland. It is to be located in the Invergordon region - close by the deep harbours of the Cromarty Firth, on the site of a former aluminium smelter which is now owned by Alcan. Forscot, the company behind the project, includes well known figures from the UK paper and forest industry, namely Ed Gillespie, Tharald Frette, David Mackie, Robert Rickman and Thomas Tait. They hope to begin construction in 2006 and start manufacturing in 2008.

Figure 1: Scotland is one of the few prime locations in Europe for a major forest project. It has an abundant and growing forest resource and prime industrial sites. The Cromarty region is a centre of engineering and fabrication for the offshore oil industry, for which an efficient transport infrastructure has been developed. The UK and Europe provide huge markets - currently the UK is importing some 80% of its forest products - wood, pulp, paper and panels.

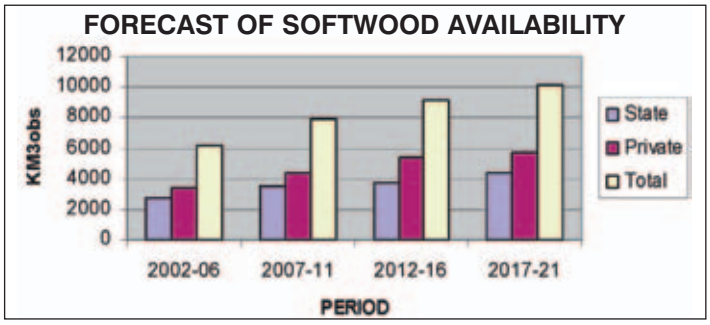


Figure 2: Scotland's expanding forest resource. From the presentation by Dr Bob McIntosh, Forest Commission Scotland, at the 2004 Conference of the Scottish Forest Industries Cluster.

Funding for the first stage of the project, has been secured, including a grant of £0.2 million from Ross and Cromarty Enterprise (RACE), and discussions on the purchase of the site are underway. Phase1 will also include the completion of feasibility studies, and the necessary planning and environmental permits.

The project comes at a time when Europe's top papermakers are formulating virgin fibre strategies 'to underpin growth aspirations in the next decade,' according to Robert Wilson, MD of Jaakko Poyry Consulting UK. He was speaking at the Timber Conference of the Scottish Forest Industries Cluster, which was held at Dunblane last year.

After a decade of rapid expansion in recycling, the quality of the European fibre basket is declining and there is now a need for more strong, virgin fibre in the papermaking loop.

At the same time, Scotlands pulpwood supply is expanding rapidly. Timber stocks are maturing and softwood availability, which doubled in recent decades, is set to rise by another 66%, *figure 2*.

Planning on a world scale

The Forscot project encompasses:

- A 550,000 tpy pulp mill which will produce A+ northern bleached softwood kraft (NBSK) - a pulp grade which is currently only made in Canada and which commands a price premium and a secure position in the world market.

  The raw material is local Sitka spruce, a white wood with a relatively low resinous content and long thin fibres which make it ideal for papermaking. Spruce is in short supply in Northern Europe - except for Scotland and Russia which are now supplying the mills of Scandinavia and Europe.
- A 420,000 tpy paper mill which will produce mechanical grades from a mixture of chemical and mechanical pulps. Sitka spruce, makes 'just about the best mechanical pulp, and therefore mechanical paper, in the world', says Forscot.

  The paper will be engineered for end uses in magazines and advertising brochures, a market which is growing at 3 to 5% a year. Most of the output will be sold in Europe including an estimated 150,000 tonnes

in the UK, south of Manchester.

- A saw mill which will have a single line producing 250,000 tpy of sawn goods from 450,000 tpy of logs. The plan is to set up a partnership with a UK manufacturer of sawn goods.
- A renewable energy generation plant with two boilers. Green energy will be produced from mill and forest residues and captured in the form of high pressure steam which will drive a turbine to produce electricity.

The main (or power) boiler will be of the fluidised bed type, able to burn a wide range of fuels, including: i) bark and sawdust from the saw mill; ii) bark from the small roundwood consumed by the chemical and mechanical pulp lines; and iii) forest residues from thinning and felling.

The recovery boiler will recycle the various pulping chemicals in a process which releases significant quantities of energy.

While the mill itself will be a large consumer of energy, Forscot plans to have at least 50 MW of surplus electricity for sale on the open market. This will almost certainly be classified as 'green' power, and, as such, will help Scotland to meet its targets for renewable energy.

One of Europe's few prime locations

The sheer scale and integration of the Forscot project places it at the top of the world league in terms of synergies, efficiencies and economies of scale. The economics of the project are also underpinned by easy access to and abundant supply of raw material resources and to major paper and wood markets - currently, imports account for some 80% of the UK consumption of wood, pulp, paper and panels.

'Juxtaposition, makes Scotland one of the few prime locations in Europe', says Robert Wilson. 'The close proximity of resource, market, population and prime industrial sites', set a Scottish project 'apart from the remote locations in Europe which are usually offered for forest industry investment'.

Ross and Cromarty (RAC) stretches across the northern Highlands from coast to coast, covering almost half a million hectares – from Ullapool and Lochcarron in the west to Cromarty in the east.

RAC has abundant forest reserves and an industrial and engineering base, much of which has been oil-related since the 1970s. The offshore industry stimulated investment in the transport infrastructure and the road, rail and river ways are well developed. The deep harbours of the Cromarty Firth and the port facilities at Invergordon are significant assets. Forscot pulp will be shipped through Invergordon, either to intermediate storage in Rotterdam or to a distribution terminal in the UK. There are plans to establish a Highland Deephaven at Evanton, a few miles upstream from Invergordon – a multi-modal transport hub of national , economic significance. The oil fabrication business is in decline – the Nigg yard closed down in 2000 - and RACE is laying the foundations for a broader economy, of which forestry is a key component. The area has 'substantial forestry resources in the ground' and , 'the need is to add far more value to the basic product', said the RAC Local Economic Forum, in its Strategy for Local Economic Development 2003-2006

FOREST AND WOODLANDS: TOTAL AREA 2004

	Conifers		Broadleaves		Hectares
	FC	Non-FC	FC	Non-FC	
Scotland	440,000	611,000	25,000	254,000	1,330,000
GB	692,000	892,000	89,000	1060,000	2,733,000

NEW PLANTING AND RESTOCKING: MARCH 2003-04

	Conifers		Broadleaves		Hectares
	FC	Non-FC	FC	Non-FC	
Scotland	4,923	5,301	445	5,020	15,689
GB	8,026	6,075	1,055	11,020	26,127

NEW PLANTING AND RESTOCKING IN SCOTLAND: 2000-2004

	2000	2001	2002	2003	2004
N.Planting	10,400	11,700	8,000	6,700	6,800
Restocking	8,100	8,000	7,800	8,500	8,900
	18,500	19,700	15,800	15,100	15,700

FOREST COMMISSION IN SCOTLAND: 2000-2004

	2000	2001	2002	2003	2004
N.Planting	0	100	100	100	100
Restocking	4,300	4,400	4,900	5,000	5,300

NON - FOREST COMMISSION IN SCOTLAND 2000-2004

	2000	2001	2002	2003	2004
N.Planting	10,400	11,600	7,900	6,600	6,700
Restocking	3,800	3,600	2,900	3,500	3,600

NEW PLANTING AND RESTOCKING IN GREAT BRITAIN 2000-2004

	2000	2001	2002	2003	2004
N.Planting	17,100	18,100	13,700	13,000	13,100
Restocking	14,600	14,200	13,000	13,700	13, 800
	31,700	32,300	26,700	26,700	26,900

Forestry Facts and Figures 2004, from the Forestry Commission. They show the forest area in hectares and its development through new planting and restocking. The data covers Great Britain - England, Scotland and Wales - along with separate statistics for Scotland. Today, some 17% of Scotland is forested, compared with 11.6% for the UK as a whole.The target set by the Scottish Executive is for 25% coverage by 2050.

Guardbridge runs in PM3

The Guardbridge Mill of Curtis Fine Papers is running in PM2, which was relocated from Dalmore along with a laminator, a rewinder and an embosser. The 1.3m machine has been renamed PM3. Dalmore PM1, a 2.6m machine was sold to a Thai company by John Wilkie Paper Mill Services.

The two Dalmore PMs had a combined capacity of 10,000 tpy of uncoated woodfree and specialty papers. Before the relocation, Guardbridge produced 30,000 tpy of the same grades on three machines.

Jefferson Smurfit sells Munksjo

The Jefferson Smurfit Group is selling the Munksjo specialty paper business to the EQT III Fund for € 450 million. The proceeds will be used to pay down debt.

The speciality assets comprise pulp, decor paper, and specialty paper. Annual sales to 31 Dec 2004 are an estimated €480 million.

JSG is also selling the Munksjo tissue business to SCA for €28 million. Both deals are subject to official clearance.

The Munksjo containerboard and corrugated assets are being retained by the Irish Group. Primarily located in Norway, Sweden and Poland, they comprise some 90,000 tonnes of containerboard and 150,000 tonnes of corrugated capacity.

Dublin Mill: Jefferson Smurfit is closing the Clonskeagh Mill in Dublin with a loss of 58 full-time and 12 part-time jobs.

The mill, which makes packaging grades, has become uncompetitive as a result of: reduced market pricing, increased energy costs, higher environmental charges and changing market requirements

Tullis Russell turns to BioPower for heat and energy

Tullis Russell to is to harness BioPower to provide heat and energy at the Markinch paper mill in Fife.

A £73 million combined heat and power station will be built at the Scottish mill by Scottish BioPower, a new company formed by Scottish Coal. In addition, an energy business park will be developed on land adjacent to the paper mill site.

It is hoped to attract new businesses to the area, businesses which will benefit from competitive and stable energy prices from the new power station.

The Rothes Biopower CHP Plant will replace the mill's coal and gas fired power station, which has been in daily operation for nearly 60 years. At 50 MW, it will have about twice the generating capacity of the existing plant, and will provide the mill with a stable supply of electricity and steam at a competitive energy price.

The surplus electricity will be exported for sale to other companies.

The CHP plant will be completely fuelled by wood and wood crops planted and grown specifically for use as a fuel source.

This means that this new plant will play a significant part in meeting the Scottish Executive's target for 18% of Scotland's electricity generation being from renewable resources by the year 2010. The CHP plant will contribute some 5% of the Scottish target.

"The fuel will mainly be sourced in Scotland from forests and from energy crops grown specifically for this purpose', says Brian Staples, Chief Executive of Scottish BioPower. 'The plant will be utilising sustainable resources that are currently largely untapped'.

Developing willow as an energy crop

In addition, new energy crops will be developed - by planting and harvesting willow. This could prove to be an attractive new crop to the agricultural sector. Once harvested, the willow will quickly grow again maintaining the cycle of continued use as power station fuel.

Environmentally, the plant will be state of the art, meeting the emissions standards that are becoming ever tougher. Because it is fuelled by wood, it will have a carbon neutral effect as any carbon dioxide given off by burning the fuel is balanced by the carbon dioxide absorbed in the growing of the fuel.

The new power station will be developed and owned by Scottish BioPower, a sister company to Scottish Coal, a supplier of Tullis Russell.

Kappa SSK installs distributed information system

Kappa SSK has installed a distributed information management system at its 185,000 tpy Birmingham Mill. The new system will provide a single window view of disparate operational data and supply the real time information and product quality data which will enable the mill to increase efficiency and quality.

Initially deployed in the production, technical and laboratory department, the system can be interfaced with process and business systems to automatically collect data and provide a complete picture – from invoice to delivery.

SSK project team specifies the system

The specifications for the new system were drawn up by an SSK project team led by Katie Chong, who reports to Geoff Brooks, operations services manager. They drew up a full set of requirements and were responsible for testing the software which was supplied by QISoft, a company with extensive experience in the paper industry.

Initially, QIS was installed on a 30-day trial basis to assess suitability, functionality and performance. Training was given to operators and the existing QC database was converted into QIS. Following a review by the project team the decision was taken to switchover to QIS as the live system.

"The whole project has gone very smoothly with the operators quickly adjusting to QIS. Already we are starting to get more information than with the old system and users can now quickly run reports to see performance figures," says Katie Chong, process development engineer.

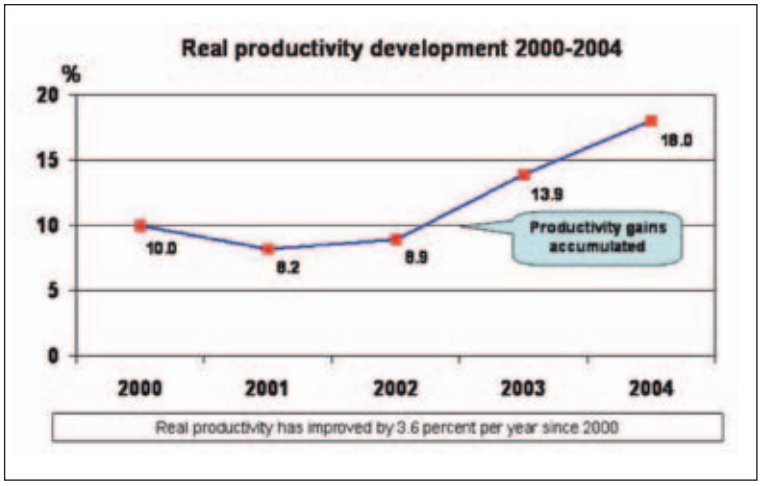
The new QISv5 is a database application, which uses standard query language (SQL). It is deployed at Kappa SSK, via Citrix Terminal Server.

The new system provides Kappa SSK with an array of analytical and reporting tools which enable the centralisation of data in one place, says Tim Perris, business manager of QISoft. This enables SSK 'to support and enables the mill to monitor process improvements and improve efficiency'.

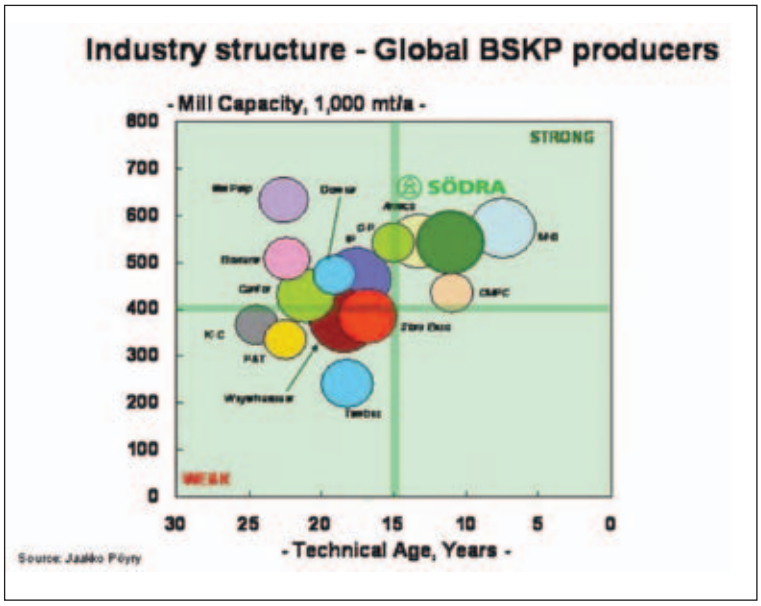
Kappa SSK recycles 205,000 tonnes of waste paper and manufactures 185,000 tpy of packaging grades for supply to converting plants. Kappa SSK is part of the Kappa Packaging Group which has over 100 subsidiaries in 17 European countries and a turnover of almost €3 billion.

QISoft has an extensive blue-chip customer base which is supported through a network of service centres - providing product training and 24 x 7 support. The product range includes a comprehensive suite of manufacturing execution systems (MES). www.qisoft.com

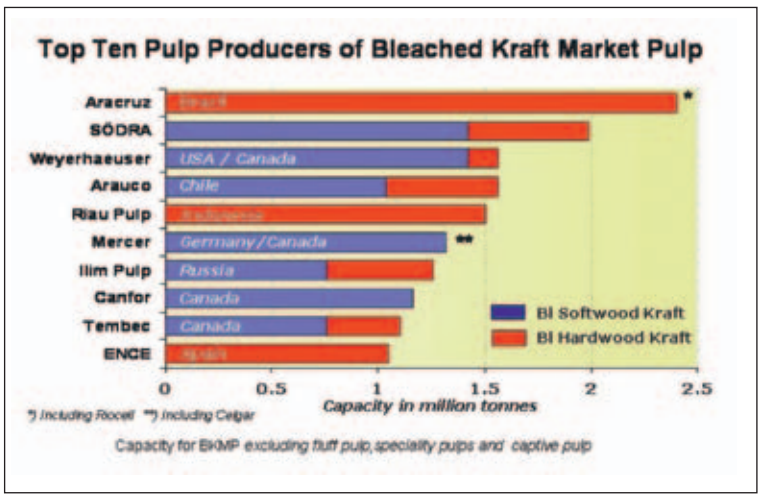
Sustained productivity drive underpins Sodra Cell's profitability



Sodra Cell launched a productivity programme in 1999 to optimise the return from its asset base. The aim was to increase throughput and improve product quality and service while optimising cost efficiency



Sodra Cell's five mills are among the best in the world, in terms of technology and capacity. The focus is on steady, sustained investment which produces mills with a good income generating potential, even during recession.



Sodra Cell has increased productivity by 3.6% a year since 2000, largely be means of continuous, incremental investments and a focus on: throughput, increased volume and improved yield - from wood, chemicals and energy, according to president Sten Holmberg.

Successive productivity programmes have transformed working attitudes at the company's five pulp mills and optimised the use of existing plant. Last October, the oldest and smallest line at Mörrum set a new daily record with an output of 560 tonnes.

The productivity drive has enabled the company to remain profitable in the face of adverse market conditions:

- the long term decline in the price for pulp which is the dominant factor in Sodra Cell's profitability. In real terms, the market prices is declining by 1 to 1.5% a year.
- the prolonged downturn of the early 2000's, which has depressed the price of pulp.
- the weak dollar which is reducing earnings on sales.

Even in 'the subdued market' of 2003, Sodra turned in a profit which was the third best in its history – Sk1,502 m after financial items on an output of 1,963,000 million tonnes of pulp.

The signs are that 2004 is also going to be good trading year. The interim report for the first 9 months shows

- an increase in output to 1,523,000 tonnes (1,463,000) from Sodra Cell's five mills: Mönsterås, Mörrum, Värö, Tofte and Folla
- a net increase in sales to Sk10 149m million (Sk9,934m)
- a 12% ROCE
- A profit of Sk871m - down from Sk1,157 m because of structural costs and a reduced contribution from hedging.

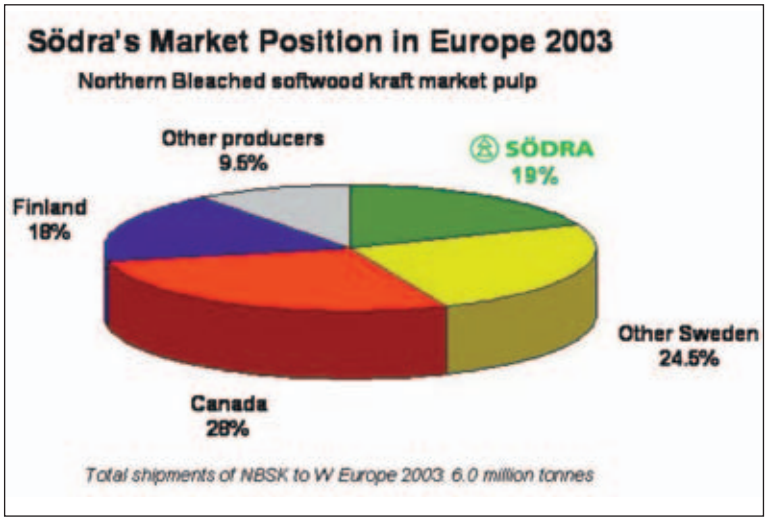
Productivity driven by volume

The productivity gains have been driven largely by volume - by increasing throughput without major investment. 'My gut feeling is that productivity driven by volume accounts for 55- 60% of the gains in productivity - a very big proportion', says Mr Holmberg.

Capital productivity is also a key component of the Sodra drive. 'We keep our investment below the level of depreciation, which is some Sk740m a year'.

The productivity drive started in 1999 with the launch of the GPS - growth, productivity sales - programme, and continues under the new strategy of 2003 to 2007. It involves continuous investment in plant and equipment and systematic rationalisation.

This programme has created highly competitive mills - at the top of the world league in terms of technology and output, *figure 2*. Sodra Cell's five mills are located in Sweden and Norway. They are: **Folla Mill, Norway:** At this 100,000 tpy CTMP mill, October 2004 was the best month in 20 years. Folla achieved: an output of 9,768 tonnes, a capacity utilisation of 97.57% and the lowest produc-



Storms devastate Sweden's spruce forests

Storms caused some €4500 million of damage to 75 million m² forests in Southern Sweden in early January - the equivalent of five years of harvest. Half of the damage is expected to be a loss. Some 43 million m² of Sodra forest is involved.

Some forest owners are making the case for replanting with storm - resistant hardwood, but Sodra is emphasising the economic importance of spruce as a pulpwood. "The competition on the world market for paper pulp, where there is an enormous supply of hardwood, means that is it softwood, and in particular spruce, that gives the greatest payback."

Across the Baltic Sea, Latvia, was also badly hit by the hurricane of 7-9 January. Storm winds felled some 5 million m², nearly half the country's harvest.

Along with Scotland, and Russia, Latvia is a main source of spruce which is in short supply in Europe.

The Estonian forests, which are pine, spruce and fir, lost around 1 million m² of trees.

tion costs for the year - the latter arising largely from high levels of output, low chemical consumption and other production-related factors.

"These good results are the result of systematic work over a long period of time, in operation as well as in maintenance,' says production manager, Odd Morten Aalberg.

Mörrum Mill, Sweden: This 420,000 tpy mill broke production and delivery records last Autumn. In October, deliveries reached 47,602 tonnes, the highest monthly volume since the mill's start up in 1962.

On the production side, new records were set during each of the four months prior to October, with peak output of 38,318 tonnes in September. The smallest and oldest of the mill's two lines has set a new daily record with an output of 560 tonnes.

Production manager Ingemar Alfredsson attributes the results to changed attitudes and closer co-operation between production- and maintenance departments.

"Our productivity work has created a stronger focus in relation to stoppages and also closer attention to possible improvements in the operation as a whole.' Mörrum's output is 75% BSK and 25% BHK.

Mönsterås Mill, Sweden: In November, this 750,000 tpy mill broke its 2536 tpd production record with an output of 2584 tonnes on its single line. The achievement followed a Sk100 upgrade during a maintenance shut. Mönsterås, which produces BSK (70%) and BHK (30%), is expected to run for 18 months before its next major maintenance.

Värö Mill, Sweden: This 400,000 tpy BSK mill achieved its highest every monthly output during the 1st Half of 2004. A new recovery boiler was installed in 2002 and the mill was overhauled during a 2 week maintenance shut in October 2003 and a 3 day shut in Oct 2004.

Tofte Mill, Norway: Produces 385,000 tpy of BSK (50%) and BEK (50%) and has been highly successful in the pioneering cost productivity programme. Optimisation programmes reduced the consumption of the expensive foamaster chemical by 50% at both Tofte and Monsteras.

The current drive is to make Tofte independent of oil. Last November, the wood room was overhauled to increase steam production and improve energy yield. The investment included the debarkers, a new bark screen, barking press and bark silo; the upgrade of the bark boiler and the barking drum.

Shifting into a new gear to maintain profitability

Sodra Cell's productivity drive has brought impressive results, but there are in-built limitations. 'It is not possible to squeeze significantly more volume out of the same machinery', says Mr Holmberg. 'We will need to shift into another gear. Over the next 5 years, we will need major investments to continue to improve our productivity.'

Capital efficiency will be the criterium for future Capex. In this context, Sodra Cell is studying the relative economic merits of

i) Continuing to import additional fibre for the Nordic mills or
ii) Building or buying a new overseas mill

Currently, Sodra produces 500,000 tpy of short fibred, hardwood pulp at Tofte, Morrum and Monsteras. These pulps account for 25% of total output - well above the 15% level which the Swedish hardwood supply can support.

Consequently, hardwood imports are high and they are becoming more expensive. Tofte imports 45% its hardwood - eucalyptus from Latin America – and the Swedish mills import birch from the Baltic States and Russia.

A feasibility study on a new mill in South Africa is also underway. Sodra Cell has formed a joint venture company – Pulp United - in partnership with the NCT Forestry Cooperative. They plan to build a 300,000 tpy BTCMP mill at Richards Bay in the KwaZulu -Natal region. The feedstock will be eucalyptus, supplied by local forest owners and members of NCT.

'Eucalyptus CTMP is not a common pulp, but Sodra Cell believes that it is a quality of the future. Tests show that 'it is close to maple, with high bulk and high light scattering properties'.

The new quality would complement Sodra Cell's product line and provide fine paper mills with new possibilities. In addition, from the South African location, Sodra can supply is traditional markets in Europe and the growing markets of Asia.

Last year, the Swedish company exported some 120,000 tonnes of pulp to overseas countries, including 50,000 tonnes to China.

European mills move to cost effective hardwoods

The price of NBSK reached $660 a tonne in Europe on 1 February - following a succession of hikes over the last few months.

October 2004 proved to be turning point in the cycle, the month during which the short, 3 month down-cycle came to an end. At the bottom of the cycle, in early October, NBSK was changing hands at $580/590 a tonne.

The price of hardwood pulps is also on the rise. On 1 January, Sodra Cell of Sweden raised the price of eucalyptus and birch pulp by $30 to $550 a tonne. A similar increase, pushed through by the big Latin American producers on 1 November, had brought hardwood pulps to $520 a tonne.

The Latin American producers are eager to reduce the $80 price differential between hardwood pulp and the benchmark NBSK. In terms of capacity, the two grades are now pretty even, with

- 21.8 million tonnes of hardwood market pulp and
- 22 million tonnes of softwood

But the price differential is behind a significant European switch to hardwood grades. In November last year, European consumption of bleached softwood kraft fell by 5.9%, while the consumption of hardwood kraft increased by 2.3%.

Statistics from Utipulp, the European buyers of market pulp, show that, in November, the Europeans bought 597,500 tonnes of BHKP and 539,700 tonnes of BSKP.

In November, total world shipments of hardwood kraft pulp increased by 9.6% compared to 2003 and the average shipment-to-capacity ratio reached 96%. Deliveries to Western Europe and North America increased by 17% and 11% respectively. Shipments to Asia fell by 11%.

PULP PRICE MOVEMENTS 2004-2005

	NBSK		BHK
	$	€	$
Feb	660	421	550
Jan	640	421	550
2004			
Dec	630	407	530
Nov	600	400	520
Oct	580/590		
Sept	623	417	509
Aug	644	435	530
July	660	447	553
June	662	458	556
May	640	466	550
April	633	447	540
March	612	420	518
Feb	570	398	499
Jan	560	380	494

Producers switch to softwood

But the price gap is also responsible for a switch in producer capacity. For some years now, North American pulp producers have been moving from hardwood to softwood pulp, a trend which was accentuated last year by the widening price gap.

In August 2004, capacity utilization in the US hardwood sector fell below 80% and by October it was down to 61%. In November, the shipments of hardwood pulp from US mills were down 8% from 2003 levels while softwood shipments increased by 12.6%.

As an example of this trend, Parsons & Whittemore is reducing hardwood output by 50% at its Alabama River Pulp mill - in future the mill will produce 50% softwood and 50% hardwood. This will cut hardwood capacity by 200,000 tpy.

In Canada, the utilisation rate for hardwood was down to 79% in October following the closure of the St Anne, Nackawic Mill. In November, Canadian shipments of hardwood kraft were down 13% from 2003 levels and the shipment-to-capacity ratio was 81%.

These curtailments of hardwood capacity were compounded by a shortage of hardwood chips last Autumn - the result of hurricane damage in the southern US - just as the pulp cycle started to move upwards.

The market turns: demand and price surge

In October 2004, the dynamics of pulp market were transformed by surging demand in the US and Asia.

In October, the Chinese returned to the market in force - attracted by the plunge in softwood prices in September. Shipments to China soared to 430,000 tonnes, an all time high, followed by 278,000 tonnes in November.

At the same time, US demand was picking up and, by November, shipments of softwood kraft were 26% above 2003 levels. Elsewhere the increases were: Japan, 19%; Asia 16%; and in Europe, a mere 1%.

Given the curtailments in hardwood pulp capacity, the Latin American producers were able to push through price hikes despite strong resistance from papermakers. They opposed the two-phase increase suggested by European producers, insisting on a $40/50 hike which brought the list price of BEK to $520 on 1 November.

With deliveries up by as much as 34% in October and 18% in November, and shipment-to-capacity ratios of 116% and 101%, the LA producers could take the line: ‘The only option for paper mills is not to buy’.

West European mills have been hardest hit by these price hikes. They account for 627,000 tonnes out of the 1.3 million tonnes of hardwood pulp shipments in November 2004. The other big consumers are North America, 231,000 tonnes and Asia, 223,000 tonnes.

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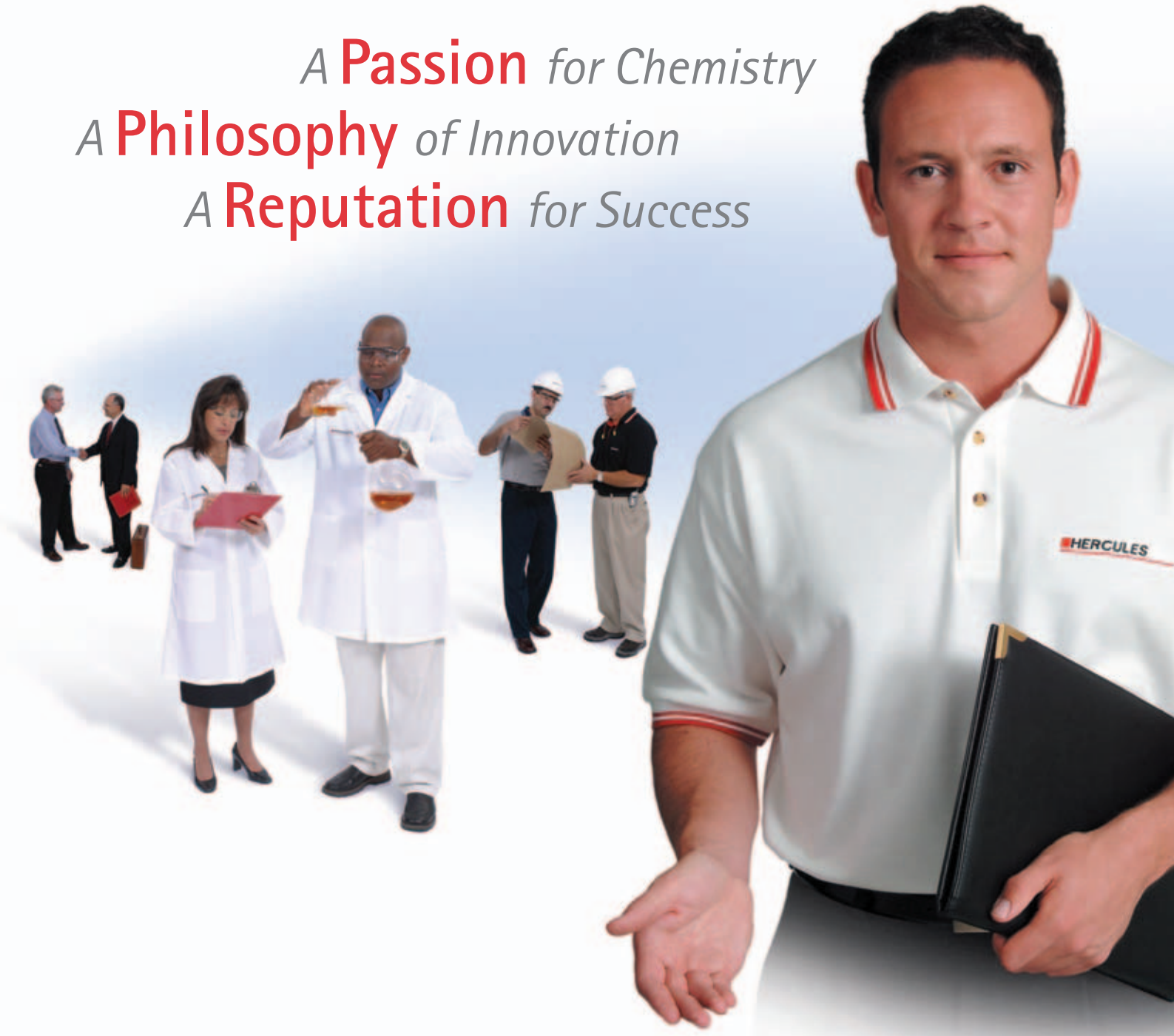

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Management buy-out: CVN is formed

In 1982, there was a leveraged management buyout of Huyck's clothing conditioning business and CVN Systems Inc was formed. The Huyck managers were supported by two investor companies - Norco, a supplier of patented oscillators; and Clark and Vicario, Inc., a supplier of vacuum systems to the paper industry.

CVN stepped up the development of high-pressure shower and vacuum cleaning products and paper makers around the world installed CVN products to enhance the performance of machine clothing.

In 1989 The Nash Engineering Company acquired CVN Systems and incorporated it into its line of paper making vacuum systems and clothing conditioning equipment.

Finally, in 2003, CVN was sold to Chuck Wunner, owner of Vooner Flogard. He recognized the need for cleaning and conditioning products to replace old, damaged and obsolete equipment as well as new products for new generation paper machines. CVN is therefore investing in product development, manufacturing capacity and a worldwide distribution system.

The 2004 agreement between CVN and Huyck UK is tailor made for both companies. The wheel comes round in a complete circle and paper mills will benefit from the expertise and experience of the original developer and the new entrepreneurial approach of the CVN Systems.

Huyck UK to distribute the CVN range in Europe

Huyck UK has become the European distributor of the CVN performance enhancement products for PM Clothing. The agreement enables Huyck to offer paper mills a more complete "systems" approach to paper formation and water removal in the press section.

The partnership brings together complimentary products and expertise:

- From Huyck: a knowledge of PM clothing and water removal and a team of recognized application engineers.
- From CVN Systems: a proven portfolio of cleaning and conditioning products for PM Clothing plus application and technical support. Following its acquisition by Vooner Flogard - a distributor of vacuum systems and liquid pumps - in 2003, an investment programme is underway: in product development, in manufacturing capacity and in a worldwide distribution system.

The partnership is a classic realisation of the expression "what goes around, comes around" since CVN's cleaning and conditioning products were originally developed by Huyck three decades ago - to meet the need of the new generation of synthetic clothing materials. Paul Keen of Huyck tells the story.

Clothing and the papermaking revolution

Thirty years ago a major technology change occurred in the manufacture of paper with the widespread introduction of synthetic materials in forming, press and dryer fabrics. With polyesters, nylons and other man-made materials, clothing manufacturers were able to produce custom designed products that created a revolution in product performance.

These new products replaced 100-year old products such as bronze wires and woollen press felts. These products had an operating life of 3-7 days and 10 – 15 days respectively and papermakers had to shutdown and replace clothing on a high frequency basis. This limited the productivity, efficiency and profitability of papermaking.

Without these technological advancements in machine clothing, the high-speed paper machines of today would not have been possible.

One of the first developers of synthetic PM Clothing was the Huyck Corp. At the Huyck research centre, R&D work was carried out on forming fabric and press fabric designs - on a specially built, meter –wide, high-speed paper machine.

The company also conducted research in

- drainage devices to remove water in the forming zone
- the development of a complete line of hydrofoil and Vacufoil products.

Huyck was awarded many patents as a result of its theoretical and applied research and has been recognized around the world for its contribution to the advancement of paper manufacturing.

The need for continuous cleaning

During the development of synthetic content forming and press fabrics, Huyck learned that the more complex weave structures that were now possible, required more intense continuous cleaning to remove contaminants and maintain porosity.

This research led to the development of high pressure continuous cleaning oscillating showers, specially designed nozzles, and precision electro-mechanical oscillators. Research also led to the application of high pressure cleaning showers and vacuum augmented uhle boxes in the press section.

During the 1970s, Huyck invested in research and development of clothing cleaning and conditioning products and led a widespread application of these products on paper machines worldwide.

Speed and life cycle records in Italy and N. America

PM9 at the Verzuolo Mill of Burgo took LWC paper through the 1900 mpm speed barrier for the first time, when it ran for 24 hours at an average speed of 1904 mpm, last October. The PM was wearing Heimbach clothing on all three sections.

At the time of the record, 4 positions in the dryer section were clothed with the low caliper, Sinfonie triple layer fabrics: the 3rd, 4th and 7th slalom groups and the 1st dryer group.

In the press section, 2nd position, an Atrocross, non-woven felt was running. Designed for shoe presses, it features fast recovery and continuously high water take-up.

On the inner position of the Optiformer, an Integra, super fine 24-shaft forming fabric ran for 10 days longer than any other previous forming fabric – a 20% improvement in lifetime performance.

VentaBelt record in NA: A grooved VentaBelt ran for 369 days and 174.6 million nip cycles on PM5 at the Millwood Mill of Inland Empire Paper in Washington. The previous North American record was 165 million nip cycles.

The grooved belt technology of Albany International channels water to produce a drier sheet and significantly increase production capability while decreasing production costs.

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Nalco Holding Company

Daniel S. Sanders has been appointed to the Board of Nalco which now comprises 9 members. He will serve on the board's Audit Committee.

Mr. Sanders is the former president of the ExxonMobil Chemical Company and a VP of Exxon Mobil Corp. He retired from ExxonMobil last August, after 43 years of service, having joined Exxon as an engineer at the Baton Rouge refinery in Louisiana.

Nalco, which had sales of $2.8 billion in 2003, provides integrated water treatment and process improvement services, chemicals and equipment programmes. It has over 10,000 employees in 130 countries, supported by a network of manufacturing facilities, sales offices and research centres.

A mill-proven technology for saving bleach plant caustic

A mill-proven technology which saves bleach plant caustic and steam is being commercialised worldwide by The Pulp and Paper Research Institute of Canada (Paprican) and NORAM Engineering and Constructors.

Developed by Paprican, the PAPRICYCLE Process has been proven in Canadian mills where it has reduced significant unit costs arising from

- caustic consumption - a chemical which is rising in price in response to strong demand and supply constraints. Typically, the new process reduces the caustic charge at the first extraction stage by 25 – 35%.
- energy consumption

PAPRICYCLE saves caustic by using the alkali value of the sodium carbonate present in the effluent from the first extraction stage of the bleaching process.

Steam is saved because effluent from the hot extraction stage heats the cooler pulp entering the extraction stage.

Savings in caustic and steam represent significant benefits for Canadian and U.S. pulp and paper mills – the purpose of the development project since Paprican aims to ensure the cost competitiveness of its Member Companies.

NORAM Engineering has received a licence from Paprican for the worldwide commercialization of the new process. NORAM will work with mill staff to determine implementation strategy and will provide detailed engineering specifications and drawings for construction.

"We are delighted to partner with NORAM Engineering to offer our patented technology to customers around the world' says Chris Kanters, Director of Contracts, Patents, and Licensing at Paprican. 'We strongly believe that NORAM's extensive engineering and project management expertise will allow mills to realize significant cost savings from this Paprican technology,"

Paprican is a not-for-profit research and technology institute which addresses both the short-term and strategic needs of its members. It has laboratories in Québec and British Columbia, and is open for business world-wide.

NORAM of Vancouver supplies proprietary engineering and equipment to the process and resource industries on five continents. It is also the licensee for the Paprilox Process. Contact: ckanters@paprican.ca or jwearing@noram-eng.com

Henkel to acquire Sovereign Specialty Chemicals

The European Commission has cleared the acquisition of Sovereign Specialty Chemicals of the US by Henkel of Germany – despite overlapping activities in Europe's industrial adhesives sector.

Henkel is active in surface treatments, sealants and adhesives; laundry and home care products; cosmetics and toiletries.

Sovereign produces specialty adhesives, coatings and sealants for packaging and converting, construction and industrial applications.

The overlap in industrial adhesives does not constitute a threat because of the presence of large multi-national companies - such as National Starch and Fuller - and smaller competitors. They will ensure that prices will remain competitive.

Solvay increases hydrogen peroxide capacity in the Americas

Solvay Chemicals is to increase the capacity of the Deer Park, hydrogen peroxide plant in Texas by 60% with the implementation of award winning, high productivity technology.

From the second quarter of 2005, Deer Park's capacity will be 260 million pounds (118 kt) per year in a single line. The new technology enables Solvay to significantly increase capacity with minimal capital investment.

At the same time, the mothballed capacity at Deer Park, which was taken off line in 1999, will be permanently deactivated.

Solvay is also planning new investments in Chile to meet fast-growing market demand in South America. These plans include a new hydrogen peroxide plant with high productivity technology and perhaps the transfer of some equipment from Deer Park.

"We have developed a proprietary technology that is making our competitiveness leap forward," says Eric Mignonat, MD for Hydrogen Peroxide. "In addition, the group is expanding in markets which experience strong growth'. South American demand is driven by pulp and paper and by the mining industry.

Hydrogen peroxide is used for its oxidizing properties in applications such as bleaching and effluent treatment. It breaks down into water and oxygen, and therefore generates no by-products and no residue, apart from water.

PRICE MOVEMENTS IN PAPER CHEMICALS

BASF	Wet End Chemicals	Up by 5 to 7% in Europe	15th Oct
	Paper colourants and pigments	Up 6% in NA	1st Nov
	All process chemicals	Up by 6-8% in NA	1st Nov
	Coating additives: thickeners, lubricants, insolubilizers, defoamers, dispersants	Up 5-10% in NA	1st Jan
Clariant	Wet end chemicals; coating chemicals and Optical Brighteners	Up by 6 to 8%	End 2004
Ciba Specialty Chems	Styrene Butadiene Latexes (SB)	Plus 10 to 15% in Europe	1st Aug
	All Paper chemicals from retention to deposit control and coating and water treatment polymers	Plus 5 to 10% in NAFTA	20th Oct
	The entire range for paper and water treatment - extractive and processing	A global hike of up to 20%, with immediate effect - possibly more for some products and regions	18th Nov
Dow Chemical Co	Caustic Soda, diaphragm grades	Up $50 pe dry short ton in US	3rd Nov
	Membrane grades	Up $60 per dry short ton in US	
Dow Emulsion Polymers	Styrene Butadiene Latexes (SB); Styrene Acrylate Latex (SA) and solid plastic pigment products for the paper industry	Up $0.04 per dry lb in NA	1st Jan
	Styrene-based hollow plastic pigments	Up $0.10 per dry lb in NA	
DuPont P&IP	Elvanol polyvinyl alcohol (PVA/PVOH)	Up $0.07 per lb	1st Nov
DuPort Titanium Tech	All TiO_2 grades	Up by 6 to 8 cents in NA	1st Oct
	All TiO_2 grades	Up $0.06 per pound in NA	1st Jan 05
Georgia-Pacific Paper Chem	Wet strength resins	Up 7%	1st Nov
Hercules Pulp and Paper	Process and functional chems - higher hikes for those subject to raw material volatility	Up 8 to 10% in Europe, or acp for existing contracts	15-Dec
	Process and funcional chems - higher hikes for those subject to raw material volatility	Up 8 to 10% in NA. May be added to existing contracts	15-Nov
Huber Engineered Materials	Silica and silicate	Up 8% as contracts permit	1st Nov
	Hydrous and calcined kaolin clay	6 to 10% as contracts permit	
	Ground calcium carbonate	8 to 10% as contracts permit	
Imerys	Kaolin and carbonate products	Up by 6 to 15%	1st Jan 05
Kemira	Coagulants Al-salts and Fe-salts	Up by 6 to 10% in Europe	1st Jan 05
	Wet end speciality chemicals; sizing retention; wet and dry strength; defoaming; deposit control	Up 5 to 10% depending on product	1st Dec
Kerr-McGee Chemical	TRONOX titanium dioxide pigments	Up €120 a tonne in Europe	1st Aug
	Tronox TiO_2 pigments	Up €120 a tonne in Europe	1st Jan 05
		Up $200 a tonne in Middle East	Or ACP
		Up $150 a tonne in Asia Pacific	
		Up $0.06 per lb in US	
		Up C$0.08 per lb in Canada	
Kolb Paper Chemicals	Process chemicals for paper and board	An average price increase of 5%	1st Mar 05
Kronos Worldwide	All Kronos titanium dioxide pigments	Up 4 to 6 cents per lb in NA	1st July
Lanxess Deutschland	Inorganic pigments; Bayferrox, Bayoxide, Colortherm and Chrome Oxide	Up €40-80 a tonne in some regions	1st Nov
	Entire product range of Paper Business	Up 30% or as contract permit	
		In Europe, Asia Pacific and LA	1st Dec
		In NAFTA region	1st Jan 05
Millenium Chemicals	All TiO_2 products: Tiona & RCL	Up by €150 a tonne	1st Oct
	Other rutile and anatase products	Up by €130 a tonne	
Nalco	Speciality Chemicals	Up by 5 to 10%	1st Nov
Omya	Gound calcium carbonates, precipitated calcium carbonates, talc and dolomite	Up by 4 to 8%	1st Jan 05 or ACP
RohmNova	Styrene-butadiene;Butadiene acrylonitrile latex (SBA);Styrene acrylic latex (SA)	Up $0.05 per dry pound	15th Aug
	Hollow-sphere pigments	Up $0.10 per dry pound	15th Aug
Solvay Chemicals	100% basis Hydrogen peroxide	Up $0.05 per lb in US	15th Sept
		Up C$150 a tonne in Canada	
Thiele Kaolin	Kaolin products	Up 5 to 9% depending on grade	1st Jan 05
Vinamul Polymers (National Starch & Chem)	Vinyl acetate homopolymer and Ethylene vinyl acetate copolymer emulsions	Up $ 0.03 per wet lb in the US	1st Nov

Household recycling in England

In 2003/04, England achieved a 3% increase in household waste recycling - its highest rise ever - and is now on course to achieve the national target of 17%, according to an announcement by the Secretary of State for the Environment, Food and Rural Affairs, Margaret Beckett.

PaperChain is encouraged by the increase, but notes these volume based targets are often achieved at the expense of material quality.

"PaperChain consistently refers to the need for recovered paper to be segregated at source, a method which helps prevent material contamination', says Kathy Bradley, Director of PaperChain. 'It is critical that the issue of quality is acknowledged and accommodated".

PaperChain is pleased to note that Canterbury City Council, with which it closely works on the Reprocessors and Local Authority Round Table, achieved a 15% increase on its 2002/3 figures. Contact: kabradley@paper.org.uk.

High UK gas prices under investigation

High UK gas prices continue to be investigated by Ofgem, and discussions are scheduled with EU authorities, according to the Confederation of Paper Industries.

In October 2003 the price of wholesale gas in the UK rose from 15p a therm to a peak of 34p a therm.

"We are following this major issue closely,' says David Gillett, CPI's Head of Environment. 'Gas prices have risen throughout Europe but they are much higher in the UK and there is no obvious explanation for this. This impacts on the competitiveness of the UK paper industry".

Ofgem has written to Centrica, Shell, ExxonMobil and BP to find out if the operation of supply contracts for gas from the Sean North and Sean South fields, prevented gas that was physically available from flowing to the GB market.

The EU meeting will focus on the way the European gas markets responded to rising prices in Britain. Ofgem has written to the national competition authorities in Belgium, France, Germany and the Netherlands. email djgillett@ paper.org.uk.

Clariant develops fluoro chemical barrier for packaging

Clariant has developed a new fluoro chemical which creates a moisture and grease resistant barrier in the paper packaging used for pet foods.

Cartafluor CFI is supplied as a liquid which is applied at the size press. It therefore penetrates the paper rather than forming a film. This enhances water barrier properties while providing an efficient barrier to aggressive oils and fats.

The new product has been approved under numerous rigorous market standard tests, including BfR.

Clariant's R&D in this area continues, Cartafluor CFI being the first of a new generation of innovative fluoro chemicals to enhance paper performance. "The characteristics of Cartafluor CFI bring a new standard to this sector" says Niko Kinnunen of Clariant.

Luzenac creates Worldwide Paper Business Unit

The Luzenac Group, a leading talc producer, has created four new global Business Units to cover worldwide markets in:

- Paper
- Paints & Coatings
- Polymers
- Specialties (ceramics, personal care, agriculture & food, and wastewater treatment)

The Business Units, with their sales and development departments, are based at regional headquarters in Toulouse, France, Denver, Colorado and Singapore.

Graham Whiteley has been appointed VP of the new Worldwide Paper Business Unit. Market development will be handled by Shripal Sharma for Europe and Peter Biza for North America. Sales will be managed by Jean-Pierre Dorgigné in Europe and Gary Williams in Asia.

The North American sales manager has yet to be nominated.

HEM launches 'product finder' website

Huber Engineered Materials (HEM) has launched a new website, www.hubermaterials.com, which features a robust product identification tool – a product finder which catalogues thousands of grades of Huber specialty ingredients.

Site visitors can streamline their search via four different methods: product chemistry, product brand name; use/application and market.

HEM markets precisely engineered, particle modified silica/silicate, kaolin clay, calcium carbonate, alumina trihydrate, barium sulfate and magnesium hydrate including many food and USP-grades.

The site promotes customer self-service, says Tim J. Butler of HEM. "If the utility of a Web site is customer focused, we can expect longer site visits and increased traffic'.

The site also offers sample request forms and links to its parent J.M. Huber Corp. (www.huber.com) and latest acquisition, CP Kelco, www.cpkelco.com.

Eka builds chlorine dioxide plant at French pulp mill

A new chlorine dioxide plant will start up at the Alizay pulp of M-real during the 2nd Quarter of 2005. It will provide the mill with round the clock service and cost efficiency - by minimizing the total cost of chlorine dioxide production.

Built by Eka Chemicals, a division of Akzo Nobel, the plant will utilise SVP-LITE technology, whereby methanol is used to generate chlorine dioxide, rather than the more commonly used sulphur dioxide.

The process will be controlled on site and monitored from the Eka site in Ambès, France, with the support the Eka operations centre in Sundsvall, Sweden.

Alizay expects major advantages in terms of cost and efficiency, says Vincent Fricker, Purchasing Manager at the mill: "We chose to work with Eka because they are able to supply the total package of chlorine dioxide technology, chemicals and monitoring systems for the chlorine dioxide process."

Around 15 pulp mills have now signed up the pioneering Eka concept, which involves the manufacture of bleaching chemicals on the mill site. Since its launch in 2000, chlorine dioxide plant have been set up at mills in Sweden, Finland, the US and Brazil. A huge €50 million facility also being built at the Bahia pulp mill which is under construction in Brazil.

'We manage the entire chlorine dioxide process, enabling our customers to focus on their core operation' says Sonny Nielsen, of Eka Chemicals.

Streamlined reel loading at Georgia Pacific Sheffield

The Sheffield Plant of Georgia Pacific has installed an air film turntable which streamlines the loading of large tissue reels into converting machinery - four reels can be made ready for the crane rather than one.

The Sheffield installation follows the success of a similar 3.6 diameter turntable at the South Wales mill of GP. The supplier is the Hovair Systems Division of British Turntable.

Georgia Pacific is using an air film turntable to streamline tissue reel handling at its South Wales mill and Sheffield converting plant.

Reels are placed on the turntable by forklift and then turned through 90° so that they can be picked up by crane and loaded into the machine. If the reel were laid down in the correct orientation for the crane, there would only be space for a single reel any one time. With the turntable, four reels can be made ready for loading; this also removes the need for truck in the loading area, thereby reducing the risk of accidents.

The GP turntable has been built with a rotational load capacity of 5 tonnes and a drive-over capacity of 16 tonnes, allowing large, loaded forklift trucks to drive over the flush-fitted unit when it is not in use.

Being air operated, the turntable has virtually no mechanical moving parts and requires no lubrication. Consequently, abrasive tissue dust does not cause wear of the bearings - this flammable dust becomes attracted to the pockets of grease that may be necessary to lubricate a mechanical turntable.

British Turntable is well established in materials handling as a supplier of mechanical rotary and linear movement equipment. It acquired Hovair Systems in 2004 www.british.turntable.co.uk.

Sandusky Walmsley in US dryer section rebuild

The last of six containers left the Sandusky site in Bolton, UK, on 26 August on a 3000 mile road journey to a US mill which had made a last minute decision to turn a routine service of the drying section into a rebuild.

'As the rail freight delivery schedule across America would take too long, the containers were individually transported by road for the 3000 mile journey', says Tony Pope, sales director of Sandusky Walmsley " All equipment was delivered by 15 September - just 24 hours before the target date'.

The rebuild took place during a planned shut which started on 20 September and all new equipment had to be on site by 16 September to avoid incurring penalties - a decision which had been taken in early July.

On 6 July Sandusky received the order which transformed the dryer re-rate into a rebuild which involved the supply of

- 60" (1524mm) diameter drying cylinders complete with bearing housings
- felt rolls and bearing housings,
- a felt guide, felt stretcher and tensioner
- four pairs of drying cylinder bearing housings
- dryer framework

The schedule left just seven weeks from receipt of order to shipping.

The paper machine was shut down on 20 September. Four existing drying cylinders plus new cylinders, associated framing and ancillary equipment were installed in a space between the 3rd and 4th dryer sections by the mill's contractors. On site erection advice was provided by Sandusky personnel.

The machine started up successfully on 26 September 2004 with saleable product being made straight away. The machine benefits from increased drying capacity and continues to run efficiently without any problems at all.

Sandusky is an international supplier of papermaking machinery with operations on four continents. Tel: 01204 396060;
Fax: 01204 366554;
email: tony.pope@sanduskyintl.com

Protecting pumping systems from entrained solids

To prevent solids or foreign materials from entering a pump, Viking Pump has introduced the Lid-Ease strainer which reduces the need for repairs of pumps and downstream process equipment - increasing uptime and prolonging equipment life.

The Lid-Ease strainer accommodates differential pressures by means of a perforated stainless steel basket which supports an inner stainless steel screen. Differential pressure indicators which show when the basket needs to be cleaned are optional.

To stop entrained solids and foreign materials, the strainer basket comes in 10 to 100 mesh screens, or no screen (basket openings 0.188" dia.). The basket can include optional magnetic inserts for trapping ferrous particles.

Mintenance is made trouble-free by a breech lock lid that enables top removal of the basket for cleaning.

Lid-Ease strainers come in three port options: grooved, tapped, and flanged. They are also available in several materials including aluminum, cast iron, ductile iron, and stainless steel. Capacities range from 20 to 1,500 gpm.

Contact Viking at Cedar Falls, Indiana, USA.
T: +1 319 266-1741;
F: +1 319 273-8157.

Automatic anti swing control for indoor cranes

The new anti-swing control dampens the load swing on indoor cranes, thereby improving safety while reducing damage - to the crane, its components and the load it is carrying.

Launched by Kronecranes UK, the automatic swing control also makes load handling faster. Traditionally, load positioning has been slowed down by the swing factor since the crane operator has had to manipulate the controls manually - to avoid damage to the load, adjacent equipment, buildings and people.

Operator control is a technique that requires months, even years of experience, and because it demands continuous attention from the driver, the stress involved can lead to physical and psychological problems. This is very noticeable on high speed and process duty cranes.

DynAPilot dampens load swing automatically. The system uses load height information integrated with the driver's commands to calculate the optimal acceleration path. With these controls in operation:

i) bridge and trolley speeds can be increased - even close to building walls - and

ii) the maximum available space can be used because there is no need to operate the crane load with dedicated safety load swing areas surrounding the operating envelope.

DynAPilot works in manual and automatic modes, allowing the operation of all motions simultaneously while the load swing us dampened. It can be fitted to most cranes by the addition of Inverter controls.

The payback period can be measured in months in industries where load damage is frequent, due to load swing or error. Kronecranes UK is based at East Kilbride, Scotland.

The free flow plate heat exchanger

The gap width of the free flow plate heat exchanger , which has become state-of-the-art in the paper industry, ensures a blockage-free operation and a very high transmissibility of media containing by fibres or solids.

The coarsely waved profile of the plates and the exceptionally wide gap of up to 12 mm between them, further ensures a smooth flow. This system is more efficient than the shell and tube or spiral heat exchanger and it helps to reduce investment and operating costs.

GEA Ecoflex manufactures plate heat exchangers - gasketed, brazed and fully-welded plate models - in Germany and Sweden. The gasketed plates are made at Sarstedt near Hannover; the brazed plate heat exchangers are made in Landskrona, Sweden and fully welded plate heat exchangers are engineered in Oberhausen and fabricated in Ratingen near Düsseldorf.

Contact GEA Ecoflex on Sarstedt,
T: +49-5066/601 180,
Fax +49-5066/601 106.

Compact water clarifier removes flocs and saves fibre

A compact clarifier, with a fully integrated dewatering system is ideal for paper mills where there is a need to treat water, remove floc or reduce the loss of raw materials.

With a very small footprint, low capital costs and a self-cleaning operation, the Salsnes clarifier is ideal for paper mills.

With a proven track record in Scandinavia, the Salsnes clarifier provides a removal efficiency of 50% for total suspended solids and more than 20% removal of BOD. It removes solids to as low as 15-30 micron and the removed solids are dewatered to produce a 25% to 40% DS sludge.

Benefiting from a very small footprint, offering low capital costs, the Salsnes Clarifier is a totally enclosed, odour-free system with low maintenance and a self-cleaning operation.

All performance data is verified by independent scientific sources. The Salsnes Clarifier meets the European Council Directive 91/271/EEC in relation to urban wastewater treatment for primary clarification.

The UK distributor is Vexamus Water of Ely. Tel: 01353 645700; Fax: 01353 645702; www.vexamus.com

PITA Affairs

CONTENTS >

The Director's Diary

A Happy New Year to all our readers! It may well be early February by the time you are reading this but as I type it in mid January that greeting is still entirely appropriate. I am delighted to say that the PITA office has returned to full strength with Helen back at her desk so normal service can be resumed. The boys are both doing well being looked after during the day by husband John and other family members as John's shift pattern permits.

Working Groups

As I indicated in my December Diary a full series of Working Group meetings was planned for late November /early December. **The Environmental and Raw Materials Groups** held a joint meeting at the conversion plant of Northern Tissue Group (NTG) just outside Lancaster. In addition to the normal business which included further discussion of the plans for "The Fate of Chemicals Project" the members present were treated to a tour of the conversion operations, a very impressive highly automated process. Since the amalgamation with Goulds the loading on these two conversion lines has increased dramatically and an extension to the current shift pattern is envisaged. For those with real staying power, host for the day Steve Roberts also offered a tour around the tissue manufacturing plant in Lancaster. The planned **Coating Group** meeting had to be postponed due to the commitments elsewhere of most of the members and has been rescheduled for early February 2005. **The Finishing Group** met in early December at James Cropper, Kendal and in addition to their regular debate enjoyed a presentation from Wood & Sterling who are based locally in Garstang. Afterwards Steve Crook and his colleagues conducted a tour of the finishing operations describing their plans for the future in this area of the mill. Finally the **Papermaking Group** met at the offices of Heimbach UK in South Manchester where the modern conference room facilities enabled a very constructive discussion of the PITA Fact Sheets using the templates located in a hidden part of the PITA website. Afterwards several members enjoyed a tour of the very impressive manufacturing facility in the company of Sales Director Chris Kershaw.

The PITA Board

The final meeting for 2004 was that of the PITA Board of Directors who considered as one of the main items of their agenda a Draft Budget for 2005. Against my Forecast for 2004 of remaining just in the black (subject to audit that is how we ended up) I presented a budget that will see the Association just breaking even. This is a considerable improvement over the last few years but the

NOTICE IS HEREBY GIVEN THAT THE 3rd ANNUAL GENERAL MEETING OF PAPER INDUSTRY TECHNICAL ASSOCIATION, A COMPANY LIMITED BY GUARANTEE AND A REGISTERED CHARITY NO 1093335 WILL BE HELD IN THE CEDAR SUITE OF THE HANOVER INTERNATIONAL HOTEL AND CLUB, BRADFORD ON TUESDAY 15TH MARCH 2005 COMMENCING AT 12.15 HOURS.

AGENDA

1) Apologies for Absence
2) Chairman's Report
3) Adoption of Report and Accounts
4) Election of Directors
5) Election of National Chairman
6) Election of Deputy Chairman
7) Election of Financial Director
8) Appointment of Auditors
9) Any Other Business

J A Clewley
Company Secretary
31st January 2005

trading situation for the Association remains extremely tough and success will rely heavily on the forthcoming Coating Conference in March. In the evening several members of the Board accepted an invitation to join the BPMSA Council members for Dinner at a local hotel which created a pleasant atmosphere for friendly discussions on matters of mutual interest.

Coating Conference

Plans for the forthcoming Coating Conference in Bradford in March 2005 are going well. Most of the papers have already been received and are being set for the Delegate Preprint Book. A lot of companies have signed up for display stands with others in advanced stages of discussion. Delegate registrations are being received including two yesterday from a mill in The Netherlands. All the early signs are therefore that this will be another successful event with a good mix of personnel, good technical presentations and plenty of new technology to be discussed around the display stands. The best paper presented at this event will be awarded the Roger Martin Memorial Prize for 2005. Latest information about this event as it develops can be found on the PITA website **www.pita.co.uk**.

BAPH

PITA supports the aims of the British Association of Paper Historians (BAPH) and there are several common members of the two organizations. We were therefore pleased to help in publicizing the recent Northern meeting of BAPH amongst PITA members based in the area. Several members did attend that meeting but others expressed regret that they were unable to do so due to other commitments. For the interest of all members we are therefore pleased to publish a report of that meeting within *Paper Technology*.

Membership Subscriptions

Subscriptions for 2005 are flowing in quite nicely but we still have a long way to go so if you have not paid yet please do so quickly or make sure that the person responsible for paying has processed your Subscription Renewal in to the relevant system.

John Clewley

Around the Districts

Scottish District & N.E. Scotland Discussion Group – 9th November 2004

Improved Wet End Stability and Performance using Multivariable Model Predictive Control & Optimisation

Alan Tulloch welcomed members to the meeting in the Mugiemoss Club. He introduced Dr Paul Austin of Invensys who was to give the talk.

Invensys is using Advanced Process Control (APC) to offer performance improvements on paper machines. These include:-

Better wet end stability, improved runnability, increased production.

Better headbox consistency control: less variation in MD moisture and basis weight.

Moisture modelling, moisture predictions at press, better control of drainage and hence better control of draw.

Improved grade change control and faster return to steady operation.

Improved dryer control, reduced bottleneck, steadier moisture control.

Control of formation, porosity and opacity (if measured online).

They are working on several different types of paper machine including newsprint machines, printing and writing paper machines, board machines and tissue machines.

The various variables both the input and output side of the paper machine were discussed.

He then went on to discuss Model Predictive Control (MPC).

It is necessary first to develop a multivariable model of the process to be controlled - the model describes how each input affects all outputs. It can specify constraints on each input (MV) and on each output (CV). A Model Predictive Controller (MPC) determines control action for each MV, knowing the combined effect of each MV on each CV. You can have a model for each different operating (grade) range. Control action is determined so as to drive CVs to setpoints, or so that they are maintained within their constraint range. MPCs can be operated with optimisers that determine setpoint targets.

He then discussed Wet End Stability Improvement on Paper Machines. Two parallel developments make it possible to improve wet end stability on paper machines. Retention chemicals provide a means of regulating wet end behaviour and new sensors enable online measurements to be made of key wet end variables. White water consistency, retention and ash content are affected by a number of stock approach and machine variables. These include the flowrates and consistencies of fresh stock, broke and recovered fibre, the dosage rates of wet end chemicals, including retention aids and filler dosage rates. The use of multivariable control tools is natural for better wet end control. Most of their APC paper machine work has begun with a project aimed at improving wet end stability and sheet ash content variation, plus providing better management of broke and fresh fibre feedrates and improving the operation of the

recovered fibre system and reducing its effect on wet end variation.

He then went on to discuss case studies on a tissue machine, a fine paper machine and a 3 ply board. The benefits of their control systems on such areas as machine stability and increased production were shown graphically.

Paul summarised his talk by saying that modelling of the multivariable processes on paper machines is the basis of the performance improvement the MPC controller is giving. The benefits of MPC on paper machines are very attractive as it gives a steadier wet end, better management of broke system, smoother operation of recovered fibre system, increase in saleable production and some reduction in use of retention aid and filler.

Most projects begin with an initial focussed application; the scope of the controller can then be extended as required, step by step.

To date, the payback time on each project has been well under a year.

After a lively discussion period the speaker was thanked in the usual way.

Dinner Dance 13th November

130 people were welcomed to the function by David Steele, NESDG Chairman, in the new venue of the Airport Thistle Hotel. A most enjoyable evening was had by all. The meal and service in the Hotel could not be faulted. Numbers were up on last year which was encouraging as quite a few regulars were missing.

John Allan

BRAID DRAPER LIMITED

Due to the tragic circumstances within the family, *(see PITA Affairs November 2004)* Mev Braid and daughter Sandra Seath have decided to close the family business with immediate effect.

Mev and Sandra wish to thank all customers for their support over the last 21 years of trading.

What the PITA website can do for you – a couple more simple guidelines!!

In the November and December 2004 issues of Paper Technology I started to give a few pointers about how to get value from using the PITA website. Having been sidetracked in December by the introduction of the Google search facility I would like to return to a couple of basic areas of the website, the Classified Section and Site Statistics.

The Classified Section

Once on the Home Page of the PITA website you will notice a Menu bar down the left hand side. Towards the bottom of the list is the word "Classified". A single click on this word brings up a page listing all the adverts currently in the Classified section. This list is constantly changing and mostly consists of Job Adverts but can also include "Positions Wanted" or other adverts such as the one currently there looking for a good home for some Memorabilia. The page currently looks like this and all you have to do is click on "full details" for any of the adverts and those details will appear as long as you have Adobe Acrobat Reader on your computer. If you do not, then you can download that from the web by clicking on the icon as indicated.

Site Statistics

It is important for anyone contemplating using the PITA website, whether for advertising or placing an entry in the Products & Services Directory, to know how much the website is being used by others, in other words how many people are visiting the site. Such information is being continually monitored and is reproduced as a set of statistics for the previous month in graphical format. To view this information just click on the word "Statistics" in the aforementioned menu bar just below "Classified" and a page called "Web Statistics" will appear. This contains a wealth of information, far more than can be adequately described here in a few words. The histograms can be tailored to show whatever people are interested in so after having a look and having studied the text below the graphs if there is something you would like to have shown then let us know. What I can tell you is that in December there was an average of 120 visitors per day who downloaded an average of 228 pages of information per day. As you will note from the middle chart the visits per day, not surprisingly, tailed off during the holiday period but so far for January (today is 20th) the average visits per day stands at 130. Our aim as we put more and more information on the site is to see that number increase steadily.

John Clewley

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Influence of the fibre composition of paper containing synthetic fibres on printing properties

Katarzyna Paszkowska and Halina Podsiadlo
Institute of Typography, Warsaw University of Technology, Poland
Andrzej Ambroziewicz
Polska Wytwórnia Papierów Wartósciowych,Warsaw, Poland

This paper presents a study of the printing properties of base papers containing different amounts of synthetic fibres - printability, being a particularly important feature of papers containing synthetic fibres.

The base papers were made in the paper mill. The Polish Security Printing Works, the composition of the products being set experimentally to obtain optimum parameters.

Particular attention was paid to surface cohesiveness – the vehicality of the paper surface; printing smoothness, and the ink demand of the paper.

The paper sheets were printed by the offset process using i) an offset printing plate with the appropriate test fields and ii) inks fixed by absorption or by oxidation.

In the evaluation of the prints, particular consideration was given to the dimensional stability of the paper samples and to the ink adhesion to the base paper. The test fields containing the qualifying elements were then analysed.

The results show that the fibre composition of the papers, after proper sizing, enables a printing quality which conforms to the standards required in offset printing.

Paper produced from raw materials of plant origin and used as a printing base has various usage and applications. It can be characterised by different strength, resistance, and printing properties. The continual emergence of new requirements for printing papers contribute to the need for new solutions, and this has a bearing on the development of synthetic paper.

The research work carried out by the petrochemical and wood industries on paper with improved strength and resistance properties resulted in the development of the first woven, semi-transparent material based on polypropylene – by Union Carbide around 1970.

The new material, which is known as Ucar, has been called a synthetic paper. Its printing properties were very close to those of paper based on plant materials. The manufacture of a paper based on synthetic fibres was regarded as an alternative to and in addition, it promised certain advantages.

The greatest constraint was the semi-transparency of the new synthetic paper which posed substantial problems for its use as a base paper, a substitute for the paper manufactured from natural fibrous materials.

In order to improve the new printing base, the synthetic mass was supplemented with titanium dioxide or cheaper mineral fillers. These endeavours produced a paper of higher opacity and improved whiteness, which met most of the requirements for printing papers.

Developed by the Oji Yuka Paper Co, this new synthetic paper was called *Yupo,* the world's first, commercially available synthetic paper[1]. Such were the origins of the manufacture of synthetic paper.

The characteristics of synthetic paper

Numerous definitions[1] were applied to the material, colloquially referred to as synthetic paper, during the the years of development work. Today, synthetic printing papers are defined as "products containing at least 20% (by weight) of synthetic substances, with well developed surface capable of adsorbing printing inks, having the coefficient of maximum ink adsorption at least 50%, and a capability of fixing the printing inks even those with small adhesiveness to the base paper, produced in the form of a web or sheets similar in appearance to the natural paper."[2]

Synthetic papers differing in structure and composition, as well as in strength and printing properties are now available on the market.

The synthetic papers currently produced are very similar to the traditional papers. They can be coated, matt or glossy, and can be printed using the various technologies.

Depending on their surface properties it is possible to choose a base paper which will produce an image/print of the required quality level. Besides, the papers are resistant to water, to mechanical deformation, and to variations of temperature, as well as to the action of fats and most of chemicals. These properties enable the use of the synthetic papers in applications for which paper made from natural fibres are not suitable.

Among the synthetic papers available on the market, one can distinguish between papers which are completely free of natural components and papers containing partly processed natural fibres combined with synthetic fibres. They differ from each other in the method of manufacturing the paper web and in the form of the base material. They can be divided into:

- papers manufactured from synthetic materials in the form of "infinitely long" fibres (e.g. Tyvek) or short fibres (Neobond),
- products made from granulated materials formed by extrusion (such as Poliart) in the form of bi-directionally orientated multilayer paper (Yupo).

Besides, the synthetic papers may or may not contain various additives such as fillers, synthetic binding materials, gluing substances etc. Their surface can also be coated with a suitable material[3,10].

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Juha Saari
VTT Technical Research Centre
Finland Paper Recycling Technology

New Process Engineering for Deinking

Part l: The Effects of Inks on Deinking

To develop more de-inkable inks, there is a need for a better understanding of ink detatchment and fragmentation during the recycling process.

The author presents the findings of a study on The Effects of Inks on Deinking. The research focused on the impact of ink formulation, deinking chemicals, deinking process and ageing on detachment and fragmentation.

The traditional process has had but limited success in de-inking digital and non-impact printings.

But new process technologies are emerging, namely enzymatic and ultrasonic treatment and magnetic separation. These developments are covered by the author in the March issue of Paper Technology. The three parts of this feature are:

- *Part 1: The Effect of Inks*
- *Part 2: Enzymatic treatment at lab and pilot scale and in successful mill scale trials at the Vieux Moulin Mill in France. See pages 37-41.*
- *Part 3 The new process technologies: ultrasound, magnetic separation and enzymatic treatment. To be published next month.*

8th Pira International Conference Prague 2004

This feature presents the results of a study on The Effects of Inks on Deinking. The aim was to gain a better understanding of the effects of printing ink formulation, deinking chemicals, deinking process and ageing on the detachment and fragmentation of printing inks.

Such an understanding is essential in the development of new, more deinkable printing inks.

The fragmentation of inks printed on polyvinyl alcohol film (PVOH) was studied in a laboratory scale drum pulper. The laboratory trials were followed by pilot scale trials - to further investigate the differences found in the coldset offset inks at laboratory scale.

Laboratory scale trials

For the printing trials, three different inks were used. These were commercial, slightly modified, coldset offset inks. The colour of the inks was cyan. The inks were numbered 1-3 and differ from each other as follows:

1. mineral oil based
2. vegetable oil based
3. rapidly oxidizing ink.

The liquid from the laboratory pulper, with the fragmented ink particles, was collected and the particle distribution was determined.

Polyvinyl alcohol film (PVOH) film was used as the substrate so that no fibres or other materials would disturb the ink particle size determination.

Particle size distribution was determined with a Galai CIS-100 particle analyser, employing laser technology. The laser measurement for the particle size range of 0.5-600 μm is based on the TOT ñ Time of Transition theory.

The collectible size for the particles should be around 10-150 μm in flotation deinking. The method and conditions for fragmentation are shown in the flow chart in *figure 1*. They include printing, dispersing, ageing, particle size measurement and analysis.

The ultrasound pilot device. Ultrasonic treatment is showing enormous potential for the de-inking of difficult inks. *It will be covered next month, in Part 3 of this feature.*

Vegetable oil/mineral oil based inks

- The vegetable oil based ink was distinguished from the two other inks by more deinking friendly characteristics.
- The area distribution for the vegetable oil based ink particles is in a more favourable area for the flotation method than the area distribution for the other inks.
- The flotation and hyperwashing trials promote these results.
- The brightness measurements support the fragmentation tests.
- The rapidly oxidizing ink has the highest quantity of small particles, size below 10 μm, which results in a darker pulp.

The findings of the pilot trials of the VTT Research Centre

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Visitors	21 748	8 910	17 804	18 242	**13 737**
Countries represented	77	49	62	57	**60**
Exhibitors	1 203	645	1 067	1 121	**964**
Countries represented	21	21	23	29	**27**
Exhibition stands	382	199	367	389	**309**
Exhibition halls	3	1	3	3	**2**
Exhibition net area m^2	24 962	9 288	19 355	19 582	**15 921**
Exhibition net area sq. f.	>250 000	>92 000	>200 000	>200 000	**>160 000**

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Juha Saari
VTT Technical Research Centre, Finland
Paper Recycling Technology

New Process Engineering for Deinking

Part 2: The Potential of Enzymatic Deinking for Woodfree Paper Grades

A full scale, enzymatic deinking experiment was carried out at the Moulin Vieux Mill in France, a mill which produces DIP from printed coated woodfree papers.

In the mill trials, a typical woodfree mix - which presents de-inking difficulties - was treated with enzymes. The results were compared with those from the mill's conventional deinking process.

Enzymatic deinking achieved significant effects:

- *The reduction of speck contamination - in the woodfree mixture containing digitally printed papers - was a particularly positive result. The trial de-inking of a batch with less digitally printed papers was also successful.*
- *The overall efficiency of deinking was improved with enzymes - in terms of higher brightness and lower residual ink content.*
- *The mechanical properties were maintained at an acceptable level.*
- *The main drawback was the high COD level in the process water – some 20-40% higher than in the standard process.*

8th Pira International Conference Prague 2004

Standard alkaline flotation deinking and neutral enzyme-aided flotation deinking were compared at pilot scale at Centre Technique du Papier, France, using a typical woodfree paper composition:

30% coated sheet fed offset printing
35% HP laser printing
35% OCE printing.

Speck contamination of the pulps was 88% lower after the enzyme treatment than after the alkaline treatment.

Based on this result, a full scale enzymatic deinking experiment was carried out at the Moulin Vieux Mill in Pontharra, France, a mill which produces woodfree deinked pulp from 100% printed coated woodfree papers.

In the mill trials, the efficiency of enzymatic deinking was compared to that of standard deinking. The findings were as follows:

- A higher brightness was obtained through the enzymatic deinking compared to the mill chemistry deinking.
- The residual ink content in the enzyme treated deinked pulp was lower.
- The mechanical properties were maintained and enzymes did not cause runnability problems on the paper machine.
- However, the COD load was observed to be 20-40% higher than in the standard process.

Pilot deinking: recovered woodfrees

Raw Material: The paper chosen for the raw material of the de-inking trials represented a typical woodfree paper composition showing deinking difficulties. The typical mixture of woodfree paper raw material comprised the following paper grades were: 30% coated sheet fed offset printing, 35% HP laser printing, and 35% OCE printing.

Enzymes: Two enzyme mixtures were selected - based on the results obtained at the laboratory scale deinking experiments carried out with individual enzymes and paper grades. The enzymes, which were obtained from AB Enzymes Finland Oy, are shown in *table 2, adjacent*.

Enzyme activity unit nkat (nanokat) is defined as the amount of enzyme activity that converts 1 nmol per second of substrate in the assay conditions. Operating conditions: A single deinking loop was performed at the pilot plant of Centre Technique du Papier. The pulper was run at medium consistency of 12-13%.

The trials comprised four processes, ie: neutral deinking, conventional alkaline deinking and two separate enzymatic deinkings.

Neutral deinking: Pulping was carried out for 15 minutes at 45° C. No retention time after pulping was applied. Soap of fatty acid was added at the inlet of the flotation.

Conventional alkaline deinking: Pulping was carried out for 15 minutes at 45ºC. No retention time after pulping was applied. The total chemistry (1% H_2O_2, 1% NaOH, 2.5%

Digital Printings – A Deinking Nightmare?

- Share of digitally printed products is increasing
- Nearly all digitally printed products are harmful for the deinking process
- The conventional deinking process removes digitally printed inks either poorly or not at all
- Even small quantities of digitally printed material can harm a working deinking process
- Traditional deinking process becomes more complicated

Table 1: Digital printings with their laser and toner inks are becoming an ever increasing proportion of the recovered paper stream. The pilot trials at CTP focused on a typical woodfree mix which presents deinking problems: 30% coated offset printings; 35% HP laser printings; 35% OCE printings.

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Mark Williamson
Thornhill, Ontario, Canada

Chemical Management Programme Improves Productivity for Burgo, Verzuolo

The Verzuolo Mill of Cartiere Burgo has entered a total service contract with Nalco, following the implementation of successful chemical programmes which resolved runnability problems on PM8 and PM 9.

The new chemical regime has brought dramatic improvements to the 400,000 tpy PM 9 line which produces LWC basestock.

- *the number of sheet holes was reduced very quickly, in many cases to zero in a jumbo reel . The sheet defects had been caused by biological growth on sites provided by inorganic deposits of bentonite used in the previous microparticle programme.*
- *the draws were reduced by 15 to 20% and speeds increased by about 150 mpm*
- *with improved runnability, machine productivity increased by an average 10%.*
- *higher and more stable retention levels - retention was raised by 15%, to 70% total retention without compromising formation.*

On 10 June 2004, PM 9 beat the world LWC machine speed record, running at a 24-hour average speed of 1860 m/min.

The total service formula is simple: Nalco's site engineers select the chemical

Today's papermaking chemical programmes are specialized multi-component systems with no common formula that suits all needs. They are applied in a customized way to achieve their intended goals – end-product quality and a reduction of the total cost of operation.

Many chemical supply contracts are therefore becoming performance related, with the supplier and the papermakers working closely together:

- to define the needs,
- to customize the makeup of the chemical programmes and their method of application to suit the process and, most importantly,
- to follow and manage the expected results closely.

It is a completely different approach than commodity chemicals, which do not have the value component that specialty chemicals do. Today, the customer service is part of the chemical supply contract and the results take the spotlight.

Nalco and Cartiere Burgo Verzuolo have recently entered into one of these performance-focused, total service contracts, and the results on the mill's flagship, PM 9, *figure 1*, have been very convincing so far.

This 400,000 tpy Metso machine, with a reel trim of 9600 mm, has recently set new machine speed records. With the new Nalco chemical service programme there have been far fewer paper defects and, as a result, better runnability. They have achieved higher and more stable retention levels without compromising formation. The machine produces on-line coated LWC papers with grammages ranging from 45 to 70 g/m^2.

Paying for performance – a fixed rate per tonne

The formula is quite simple; Cartiere Burgo pays for performance at a fixed rate per tonne

Figure 1 Verzuolo PM9, the flagship PM trims at 9.6m and produces 400,000 tpy of LWC grades in the 45 to 70 g/m^2 range

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Birgitt Hepp and Leon Joore
Millvision, The Netherlands
Henk Schonewille and Harry Futselaar
Norit Membrane Technology, The Netherlands

Membrane Filtration: a sustainable water treatment technology within modern papermaking concepts

Full scale membrane applications, with or without a bioreactor system, have been used in the virgin fibre sector since 1999 and in recovered paper sector since 2002. This paper describes three successful applications in corrugating, graphic and security paper mills.

Ugchelen Mill, The Netherlands: a membrane bioreactor (MBR) with ultrafiltration membranes was installed in 2000 to polish the bleaching water of the cotton raw material – the mill produces security grades. The membrane system, which has reduced COD by over 85%, works at a high temperature of 60ºC with no surplus sludge production.

Arctic Paper Munkedals, Sweden: ultrafiltration has achieved efficiencies of over 95% in the removal of suspended solids from effluent (since 1999) and whitewater (since 2001). The average suspended solids contents in the input are 1500 mg/l for effluent treatment and 20 mg/l for whitewater treatment. The mill produces uncoated graphic grades.

Papierfabrik Palm, Worth Mill Germany: ultrafiltration is used for the removal of suspended solids for the waste water treatment plant. The input contains about 2 mg/l suspended solids, all solids are removed by the membrane. The mill produces 600,000 tpy of corrugating medium and testliner from recycled fibre.

Over the last 10 years, the paper industry has put a lot of effort into the reduction of fresh water consumption[1]. The main focus in these water reduction projects was achieving cost reductions by using the 'towards zero liquid effluent' approach. But, this approach leads to different problems because of accumulation of (in)organic materials in process waters[2].

For the removal of all these components there are several available techniques[3]. This paper focuses on the removal of particles using membrane filtration. Membrane filtration can be used as an in-process treatment or as an effluent treatment, as described in the cases of NORIT membranes in the paper industry.

Full scale membrane applications, with or without bioreactor system, have been applied in virgin fibre paper industry since 1999. In the mean time, several pilot test have been performed for applications in the non-woven and the recovered paper based paper industry, within the fields of liner and hygienic paper[4,5]. Since 2002, full scale applications have been in operation in the recovered paper based paper industry.

General aspects of membrane filtration

With membrane filtration, one fluid stream (the feed) is divided into two or more fractional streams, one of which is more concentrated in certain components (the concentrate), while the other one is more diluted (the permeate). The membrane acts as a selective barrier enabling some components to pass and others not. The driving force for this process in water treatment is usually restricted to a pressure difference.

Figure 1 presents the main properties of the pressure-driven membrane processes. Going from microfiltration through ultrafiltration to reverse osmosis, the particle size of the molecules to be separated decreases, and, consequently, the pore size in the membrane becomes smaller. This implies that the resistance of the membranes to mass transfer increases and hence the applied pressure, also called the transmembrane pressure (TMP), has to be increased to obtain the same flux. However, no sharp distinction can be drawn between the various processes.

In waste water treatment, microfiltration and ultrafiltration are generally applied in MBR concepts or as first step in polishing the

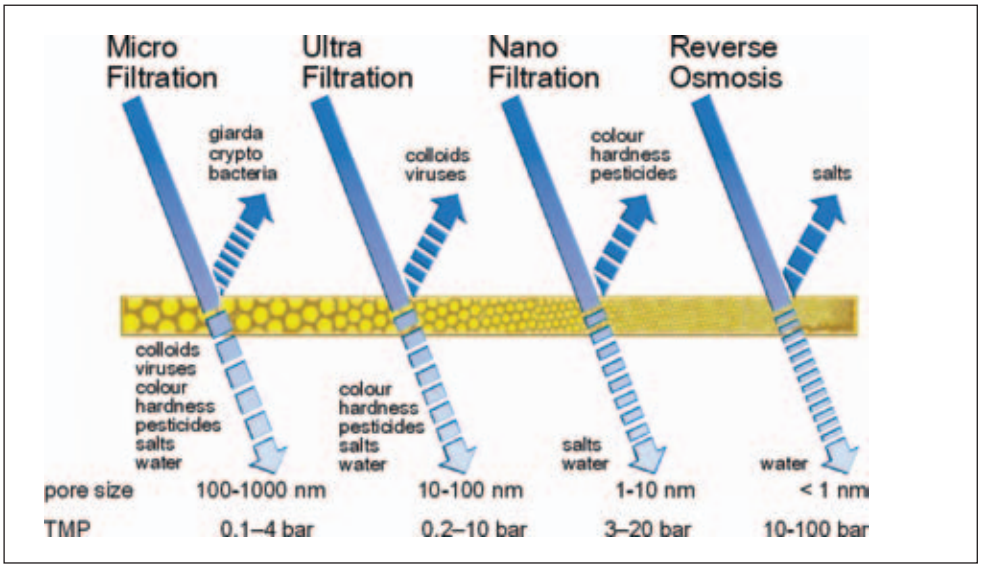

Figure 1: Pressure-driven membrane processes.

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Industry Update

M-real sells Savon Sellu

M-real is selling the business operations of Savon Sellu to a company to be founded by Dr. Dermot F. Smurfit and a group of international investors. The price tag of €20 million includes €12 million related to Savon Sellu's fixed assets.

Savon Sellu produces 245,000 tpy semi chemical fluting, which is used in fruit and vegetable packaging. The deal is part of M-real's action plan to divest its non-core assets.

M-real to sell forest land

M-real is selling its 95% stakeholding in Forestia, a forest company with 120,000 ha and a total value of €172 million. Metsaliitto is the 5% stakeholder.

The buyer is Forestia Holding, a new company formed by

- Metsaliitto, which increases its stake to 49.9%,
- Suomi Mutual Life Assurance Co, 39.9%
- Central Union of Agricultural producers and Forest owners,10.2 %.

Forestia Holding will buy the forest land of Suomi Mutual for some €21 million

M-real will underwrite €24 million of the subordinated debenture issued by Forestia Holding. The bonds will yield 8.5% interest and M-real intends to sell them in the secondary market.

M-real to cut 385 jobs in the UK and Germany

M-real has launched profitability improvement programmes in the UK and Germany - part of the €200 million savings and efficiency drive which was initiated in early 2004 and is expected to improve profitability by €30 million in 2004. The programme will run until early 2007.

In Map Merchants of the UK, M-real is restructuring the operations of MoDo Merchants and the James McNaughton Paper Group - at an estimated one time cost of €6 million. The number of employees will decrease by 55. The estimated annual improvement in profitability will exceed the one-time cost from 2006 onwards.

In Germany, at the Gohrsmuehle and Reflex mills, the number of employees will be reduced by 330 from 1800 by the end of 2006. Longer working hours at static wages have also been agreed with the Labour Unions. The weekly working hours will be increased to 40 without additional compensation and there will be no increase in wages and salaries in 2005. The total reduction in annual personnel costs is expected to be about €20 million at the end of 2006.

The non-recurring costs of the programmes is an estimated €24 million for 2004. This consists mainly of future redundancy costs as well as write-offs of certain assets and stock items relating to changes in product strategy.

In addition, in 2004 minor restructuring programmes will incur another €10 million of one-time costs. In total, a one-time cost of some €40 million will be incurred, of which about €32 million will have a cash-flow impact.

The new cost cutting drive follows a 2001 - 2004 programme which reduced annual costs by €205 million. The latest programme, which will be completed by the beginning of 2007, is focused on sales, marketing and the supply chain, as well as production and other costs.

In addition to restructuring costs, M-real is also carrying substantial financial costs - i) some €20 million related to the recent rights offering and ii) the revolving credit facility of €500 million.

Back to basics: reduce debt and boost profits

M-real's new CEO Hannu Anttila, launched a back to basics campaign last Autumn. The aim is to improve the existing asset base, increase cost competitiveness, enhance product quality and efficiency and reduce debt.

To counteract 'a lack of focus and accountability', the company has reverted to its previous organizational structure. Each business area is again directly responsible for unit performance and a portion of their incentives is linked to profitability.

Investment, which has been low in recent years, will be boosted. In 2005 and 2006, capex will be increased to the level of depreciation and will be funded primarily from cash flow. Priority will be given to the consumer packaging and publishing sectors - office papers are not earmarked for investment in the near term.

Spending will be focused on investments with high returns and short payback periods.

M-real has divested €1.1 billion worth of assets since 2001, and the programme continues with the divestment of its 95% stake in Forestia – the owner of 112,000 ha of Finnish forestland – and Price & Pierce, a trading house specializing in pulp and paper, to Gould Paper of the US.

Proceq Asia acquires IE Supply of Singapore

Proceq, a Swiss manufacturer of paper testing equipment, has established an Asian presence with the acquisition of IE Supply of Singapore. The move follows the success of Proceq USA which was established in 2002 to serve the North and South American markets.

Proceq develops portable, non-destructive test and measuring equipments for the paper, metal and concrete industries. The PARO-tester measures the hardness, hardness profile and variation in hardness on paper, foil and film rolls. www.proceq.com

ÅF Group reduces fixed costs

The ÅF Group has launched a cost cutting programme which will reduce the fixed costs of the Systems Division by Sk 3 million a month. The group was restructured in to three strategic divisions last year: Infrastructure, Process and Systems.

Profitability has continued to be problematic in the Systems Division. During the 4th Quarter losses amounted to Sk 30 million - including the Sk 15 million cost of the cutbacks. Capacity utilisation has remained low, prices are under pressure and the value of customer projects has declined.

Earnings from the consulting business are developing positively - with the sole exception of IT & Product Development.

Norske Skog forms worldwide union/management deal

Norske Skog has established a Global Employee Forum (GEF) which creates a positive climate of collaboration between between management and employees - the first world-wide agreement of its kind in pulp and paper industry.

The agreement was signed by by chief executive Jan Oksum and chief shop steward Kåre Leira.

"This agreement provides an arena where union representatives from all our mills can have a direct dialogue with corporate management, says Jan Oksum. "That will allow them to express their views and get the information they need about the company's development and strategic choices."

The GEF will also help employee representatives to develop personal relationships, and thereby contribute to greater openness and cooperation between units and regions.

The agreement will underpin and promote the day to day collaboration between management and employees at each mill.

GEF meetings will be related to the annual top management meeting in Norske Skog - to allow more of the employee representatives to participate in the discussion of strategic issues - production, manning, health and safety, and environmental - and thereby gain a better understanding of how other parts of the company operate.

"I'm proud that a Norwegian company is bringing Norway's model for collabortaion between management and employees out into the world," says Mr Leira."We've reached a milestone in Norske Skog's in-house collaboration. This will give us a common platform for pursuing our important work on behalf of all employees world-wide.

Schweitzer-Mauduit, to supply Philip Morris

Schweitzer-Mauduit has signed a new contract with Philip Morris USA - for the supply tobacco papers from 1 Jan 2005 to 31 Dec 2007. The two companies have been operating a similar strategic supply agreement since 1 Jan 1993.

Schweitzer-Mauduit is a diversified producer of specialty papers and the world's largest supplier of fine papers to the tobacco industry. It has operations in the US, France, Brazil, Indonesia and Canada.

Other products include: paper for batteries, vacuum cleaner bags, overlay products, business forms and printing and packaging applications.

ADVERTISERS

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Ashtead Technology Rentals

James Carlyle has been appointed General Manager of Ashtead Technology's new offices in Hitchin, Hertfordshire. The company specialises in the rental of technical equipment for non-destructive testing; remote visual inspection, and environmental monitoring. It provides technical advice on what to rent and how to use it.
Tel. 0845 2702 707; Email james.carlyle@ashtead-technology.com

Metso

Communications manager Kati Renvall is to head Metso's internal and external communications. She will report to Jorma Eloranta, president and CEO of Metso Corporation.

Eeva Mäkelä, VP of Investor Relations, will be responsible for investor relations and financial communications. She reports to Olli Vaartimo, executive VP and CFO, Metso Corporation.

M-real VP of Speciality Paper

Benno Hundgeburt left M-real at the end of 2004 following a divergence of opinion on future business strategies.

Mr Hundgeburt worked successfully with Zanders, International Paper and M-real, for more than 12 years. Most recently, he provided 'valuable service' as senior VP and general manager of the Speciality Paper business, says M-real.

BAPH Meeting: *at the Sir Kenneth Green All Saints Library*

The fourth of our Northern Meetings took place on November 10th 2004, when some 18 people gathered at the Sir Kenneth Green Library, which is part of the Manchester Metropolitan University. We were the appreciative guests of the All Saints Library Special Collections section, looked after by Gaye Smith. The lecture room in the library was excellent, and extremely well equipped – much the best thing this retired academic had ever seen! Even the overhead projector had a video camera in place of a projection lens, the image being transferred to the screen by means of a video projector.

We had a varied and interesting programme. Richard Hills talked about papermaking in Tibet, with a splendid collection of slides illustrating the special methods of hand making – many with a beautiful backdrop of the Himalayas. Tanya Schmoller was able to show us the gems of her collection of decorated papers, which is held by the library. Stephen Thompson gave us a fascinating talk on Board Making in Cumbria. Stephen's long family association with board production in Cumbria lent the talk added interest and authenticity.

After an excellent buffet lunch, Gaye Smith introduced us to some aspects of the Special Collection with relevance to papermaking. Much of interest was on display, including a splendid pop-up book of Alice in Wonderland – in which I am particularly interested; I am glad to say that I have since been able to buy a copy! We were interested – in various ways it has to be said – in seeing examples of a book as a work of art in itself. Bill Inman then wound things up very well with a talk on the history of health and safety in the paper industry entitled *"Perils of Papermaking"*. It is remarkable how relatively recently safety had been taken seriously.

Thanks are due to the contributors, to our hosts in the library, and especially to Bill Inman who organised this event. It would have been good to have had a few more people there; perhaps next year. . .

Ian Hendry

UPM-Kymmene restructures its converting division

UPM's Converting Division has been restructured into two businesses as of 1 January: Labelstock Business and Speciality Coatings Business. The business presidents will report to Jussi Pesonen, President and CEO.

Heikki Pikkarainen has been appointed President of the Labelstock Business and to the UPM Executive Team . He was previously VP Strategic Development. Labelstock consists of:

- Raflatac, the self-adhesive labelstock manufacturer and
- UPM Rafsec which produces radio-frequency identification (RFID) labels and cards.

Matti J. Lindahl, who has been appointed President of the Speciality Coatings Business, remains a member of the Executive Team.

The business consists of

- Walki Wisa, a producer of industrial wrappings, and
- Loparex, a producer of siliconized release materials.

Walki Wisa to build converting factory in China

Walki Wisa is to build a €6 million converting factory in the Jiangsu Changshu Economic Development Zone, some 100 kilometres from Shanghai.

The Walki Wisa Packaging Paper (Changshu) Co. will produce industrial wrapping materials demand for which is expected to grow with China's expanding paper industry. The plant will also enable the flexible production of converted papers for the Chinese packaging industry.

Start up is scheduled for 1Q 2006. Walki Wisa has a printing unit in Shanghai.

New market organization for Södra Cell

Södra Cell has created a new company Södra Cell International which will encompass all the international sales companies, shipping operations and the central marketing department in Växjö. The managing director is Ulf Edman, formerly marketing director of Sodra Cell.

'Structural changes in customer circles place new and higher demands on us. Not least when it comes to logistics solutions that are becoming increasingly complicated', says Mr Edman. "Södra Cell International will have better conditions to meet these."

The re-organization will create clearer areas of responsibility by establishing a common organization in the marketplace.

Södra Cell International will include 45 employees at HQ in Sweden and at the six daughter companies in Oslo, Hamburg, Paris, London, Milan and Basle.

Marketing director Ulf Edman
+46 47089000 (office) +46 70 677 8769

Information manager Ulf Gunnarsson
+46 70 546 3406.

Södra's financial director

Mikael Staffas (38) has been appointed financial director of Södra as of 1 March 2005. He succeeds Stefan Åström who ends his employment at Södra on 30 April.

Mikael Staffas has worked for McKinsey & Company since 1990, with a break for MBA studies in France in 1992. He has been posted in Moscow since 2001. He holds an MEng degree in technical physics from the Royal Institute of Technology in Stockholm.

Siemens Automation Systems

The Siemens Automation and Drives Group (A&D) of Nuremberg, Germany, has appointed Ralf-Michael Franke (46) president of its Industrial Automation Systems Division. Mr Franke was responsible for the "Innovation" programme – management technology for the Siemens corporate office.

He succeeds Dr. Horst J. Kayser is now running Siemens in South Korea.

Siemens offers an integrated range of products and systems for automation in manufacturing and process industry. Based on the Totally Integrated Automation concept, the core components include process control and IT manufacturing execution systems.

Australia forest industry group

The National Association of Forest Industries has appointed Catherine Murphy to the position of CEO.

Ms Murphy has been a senior government adviser for several years and is currently chief of staff at the Ministry for Education, Science and Training. From 1996 until 2002 she was senior adviser (legal) to the Prime Minister and has held senior positions in the Department of the Prime Minister and Cabinet and the Department of Finance.

New Appointment at CPI

Recent graduate Lee Edmonds has joined the The Confederation of Paper Industries (CPI) to fill the newly created position of Information Executive at Swindon.

He will work in both the Statistics and External Affairs Departments and will be responsible for helping to develop and maintain the CPI website, which has become the industry's primary information vehicle to the outside world.

Director of External Affairs at CPI, Kathy Bradley said "Lee has already made a difference to the department. He is enthusiastic and dedicated, and his communication skills will enhance the External Affairs Department."

International Paper

Jonathan Mason has accepted the senior role of VP and treasurer of International Paper, for which he has resigned from his position as CFO of Carter Holt Harvey - a company in which IP has a major shareholding. He will move to his new job on 1 March 2005.

Mr Mason joined Carter Holt Harvey from IP in November 2000. In his four years with CHH he ran hedging and balance sheet restructuring programmes which helped the company to repay over $1 billion of debt and to return over $800 million to its shareholders - through dividends and capital returns.

Stora Enso appoints enviro director

Stora Enso has appointed James D. Weinbauer Senior VP and Director Environment as of 1 April 2005. He reports to Yngve Stade, Senior Executive VP Corporate Support and will have offices both in Stockholm, Sweden and Wisconsin Rapids, USA.

Since 2000, Mr Weinbauer has been VP Environmental Affairs at Stora Enso North America. He has over 30 years experience as an environmental professional in the paper industry.

Per G. Broman, the current Director Environment, will retire at the end of March 2005.

Mill manager at Norske Skog Union

Svein Aurstad has been appointed mill manager at the Union Mill of Norske Skog, as of 1 February 2005. He will succeeds Lars Løchen who is retiring.

Mr Aurstad worked as process engineer at Union from 1977 to 1979 and as mill manager of Norske Skog for 7 years. He then became integration manager in Norske Canada and Norske Skog Europe and in 2002 was appointed mill manager at Norske Skog Parenco

Tamfelt President and CEO

Tamfelt Corp has appointed Jyrki Nuutila (56) as President and CEO. He will take up his new position on 1 April 2005.

Risto Hautamäki, who has been President and CEO since 1995, will retire on 1May 2005, as he turns 60.

Jyrki Nuutila has worked for Tamfelt since 1986 and is currently Executive VP and Deputy to the CEO. He is member of the Board of the Federation of the Finnish Textile and Clothing Industries.

Tamfelt is a world leader in technical textiles, its main products being paper machine clothing and filter fabrics.

New Role for LPC's Nash

Rob Nash has been appointed sales manager of the LPC Group, the UK's largest independent producer of disposable paper products.

Rob Nash, sales manager of the LPC Group

He joined the Group last year as business development manager, and is now looking forward to having more direct contact customers.

LPC had a good 2004 in terms of sales, and the target is to keep that momentum going in 2005.

Ivor Jones, sales director of the LPC Group believes that the appointment will herald the beginning of a new stage of sales success. " Rob will be working through the national account managers and field sales managers to nurture existing customer relationships and also develop new ones. I see this role as being made-to-measure for Rob, and I'm sure the LPC Group will soon be reaping the benefits."

Rob Nash has over a decade of experience in fast moving consumer goods sales. He has worked with some of the biggest names in the industry, having been responsible for the development of Kelloggs' Tesco global business.

Products & Services Directory

COMPANY	LOCATION	CONTACT	TELEPHONE	E.MAIL
ABSORBENCY AIDS				
Blackburn Chemicals	Lancashire	Amanda Lamb	01254 52222	alamb@bbchem.co.uk
AIR SHAFTS EXPANDING				
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk
AIR TURN SYSTEMS				
Spooner Industries	Ilkley	Steve Newell	01943 609505	snewell@spooner.co.uk
ANTISCALE				
Crosmill	Sandbach	David McMillan	01270 758777	david@crosmill.co.uk
ANTI-SLIP SURFACES				
Scotgrip (UK) Ltd	Kincardineshire	James Smith	01330 825335	sales@scotgrip.com
AUTOMATED HANDLING & WRAPPING REELS AND PALLETS				
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk
Pesmel of Finland	West Yorkshire	Jukka Tamminen-Jackson	01924 848399	jukka.tamminen@pesmel.com
AUTOMATED SPRAYING AND CONTROL				
Spraying Systems Ltd	Farnham, Surrey	Rowland Bailey	01252 727200	info@spray-uk.co.uk
BARRIER COATINGS				
GBC (Speciality Chemicals)	Oxford	Adrian Iley	01608 813088	gbcspecs@enablis.co.uk
BIOCIDES				
Crosmill	Sandbach	David McMillan	01270 758777	david@crosmill.co.uk
Kolb Distribution	Lancashire	Malcolm Austin	07720 287460	malcolm.austin@kolb.ch
BLADE HOLDERS, COATING & CREPING				
BTG	North Harrow	John Grensinger	020 8515 6050	sales@btgppt.com
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk
BLADES, COATING, CREPING AND PRINTING				
BTG	North Harrow	John Grensinger	020 8515 6050	sales@btgppt.com
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk
BROKE ROLL HANDLING				
Core Link AB	Falkenberg, Sweden	Karl-Henrik Axelsson	+46 346 56835	kh.axelsson@corelink.se
BROKE ROLL SPLITTERS				
Core Link AB	Falkenberg, Sweden	Karl-Henrik Axelsson	+46 346 56835	kh.axelsson@corelink.se
CHARGE MONITORING CONTROL WET END				
BTG	North Harrow	John Munday	020 8515 6050	sales@btgppt.com
CHUCKS				
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk
COATING CONSULTANTS				
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk
COATING EQUIPMENT & MATERIALS				
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk
COATING SYSTEMS				
BTG	North Harrow	John Grensinger	020 8515 6050	sales@btgppt.com
CONDITION MONITORING				
Monitran Ltd	Buckinghamshire	Suzanne Pearl	01494 816569	suzanne.pearl@monitran.co.uk
CONSULTANCY SERVICES				
Clearwater Paper Technology Ltd	Devon	Ron Slucky	01884 255455	ras@clearwater-technology.com
Clearwater Poole	Bury	John Poole	0161 797 3437	jpoole@clearwaterpoole.co.uk
The PITA Register	Bury	John Clewley	0161 764 5858	info@pita.co.uk
CONTRACT RESEARCH				
BC Paper	North Wales	Dr. Richard Quinney	01248 370588	r.f.quinney@bangor.ac.uk
University of Manchester	Manchester	Bob Wilde	0161 306 3904	r.wilde@umist.ac.uk
CORE CUTTER & CORE HANDLING				
Core Link AB	Falkenberg, Sweden	Karl-Henrik Axelsson	+46 346 56835	kh.axelsson@corelink.se
COUPLINGS				
John Crane UK Ltd	Manchester	Gary Webb	07711 650660	gary.webb@johncranemcr.co.uk
CRANES				
Konecranes	Lanarkshire	Gordon Adie	01355 220591	gordon.adie@konecranes.com
DEFOAMERS				
Blackburn Chemicals	Lancashire	Amanda Lamb	01254 52222	alamb@bbchem.co.uk
Kolb Distribution	Lancashire	Malcolm Austin	07720 287460	malcolm.austin@kolb.ch
DE-INKING CHEMICALS				
Kolb Distribution	Lancashire	Malcolm Austin	07720 287460	malcolm.austin@kolb.ch
Stephenson Recycling Chemicals	Bradford	Ramesh Patel	01274 723811	src@stephensongroup.co.uk
DOCTOR BLADES				
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk

Products & Services Directory

COMPANY	LOCATION	CONTACT	TELEPHONE	E.MAIL
DRYING CYLINDER SERVICES				
Bender Machine Services	Rossendale	Steven Withers	01706 225521	swithers@bendermachine.com
DRYING CYLINDERS				
Clearwater Poole	Bury	John Poole	0161 797 3437	jpoole@clearwaterpoole.co.uk
Sandusky Walmsley	Bolton	Mike Valentine	01204 396060	mavalentine@sanwal.co.uk
DRYING CYLINDERS MAINTENANCE				
Intertechnics-Cumel-ReDoc	Oxford	Anthony Shepherd	01993 810080	info@intertechnics.co.uk
DRYING HOODS & VENTILATION				
Greenbank Engineering	Blackburn	David Wilkinson	01254 690555	info@greenbanktechnology.co.uk
DRYING ROLLERS				
Sandusky Walmsley	Bolton	Mike Valentine	01204 396060	mavalentine@sanwal.co.uk
DRYING SYSTEMS				
Greenbank Engineering	Blackburn	David Wilkinson	01254 690555	info@greenbanktechnology.co.uk
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk
Spooner Industries	Ilkley	Steve Newell	01943 609505	snewell@spooner.co.uk
DYESTUFFS				
Albion Colours	Halifax	David McCarthy	01422 358431	David.McCarthy@albionchemicals.co.uk
EDGE GUIDANCE SYSTEMS				
Fine Controls	Wirral	John Donaldson	0151 343 9966	John@finecontrols.com
EFFLUENT TREATMENT				
Huber Technology	Chippenham	Jeremy Wakeham	01249 765000	wj@huber.co.uk
KWI (UK) Ltd	Flintshire	Phil Woollen	01352 700224	info.uk@kwi-intl.com
END OF LINE PACKAGING SYSTEMS				
Pesmel of Finland	West Yorkshire	Jukka Tamminen-Jackson	01924 848399	jukka.tamminen@pesmel.com
ENGINEERING, MAINTENANCE AND INSTALLATION				
Smithtech Engineering	Chorley	JD Smith	07775 732857	jd@trubody.freeserve.co.uk
ENGINEERING SERVICES				
Bender Machine Services	Rossendale	Steven Withers	01706 225521	swithers@bendermachine.com
Clearwater Poole	Bury	John Poole	0161 797 3437	jpoole@clearwaterpoole.co.uk
FIBRE RECOVERY EQUIPMENT				
Huber Technology	Chippenham	Jeremy Wakeham	01249 765000	wj@huber.co.uk
KWI (UK) Ltd	Flintshire	Phil Woollen	01352 700224	info.uk@kwi-intl.com
FILLERS				
Luzenac	Toulouse, France	Kari Alenius	0800 032 3114	kari.alenius@europe.luzenac.com
FILTRATION				
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk
Premier Filtration	High Wycombe	Chris Smith	01628 527704	premier@filt.fsnet.co.uk
FILTRATION SYSTEMS WATER				
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk
John Crane UK Ltd	Manchester	Gary Webb	07711 650660	gary.webb@johncranemcr.co.uk
FLAME RETARDANTS				
Mare Paper Chemicals Group	Luton	Mitch Cook	01582 811900	Mitch.Cook@maregroup.co.uk
INFRARED DRYERS				
Compact Engineering	Thirsk	Tim Klemz	01845 525356	apollo@compact.co.uk
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk
INSTALLATION & ALIGNMENT SERVICES				
Bender Forrest Ltd	Rossendale	Stefan Wilds	01706 225521	swilds@bendermachine.com
Clearwater Poole	Bury	John Poole	0161 797 3437	jpoole@clearwaterpoole.co.uk
INSTRUMENTATION				
Fine Controls	Wirral	Gareth Hall	0151 343 9966	Gaz@finecontrols.com
LUBRICATION MANAGEMENT				
ChevronTexaco Global Lubricants	Staffordshire	Mick Doxford	020 7719 2227	mickdoxford@chevrontexaco.com
LUBRICATION SYSTEMS (CENTRALISED). DESIGN & INSTALL				
Harrison Lubrication	Bolton	Phil Vause	01204 691352	sales@hle.co.uk
John Crane UK Ltd	Manchester	Gary Webb	07711 650660	gary.webb@johncranemcr.co.uk
MACHINERY SAFETY & INSPECTIONS				
Laidler Associates	Teesside	Derek Coulson	08700 111375	enquire@laidler.co.uk
MILLWIDE SYSTEMS				
Applied Software Control (A.S.C.)	Aberdeen	David Capel	01224 643792	d.capel@ascman.co.uk
PACKAGING MATERIALS, MACHINES AND SYSTEMS				
Pesmel of Finland	West Yorkshire	Jukka Tamminen-Jackson	01924 848399	jukka.tamminen@pesmel.com
PAPER, TISSUE & BOARD MACHINES				
Clearwater Poole	Bury	John Poole	0161 797 3437	jpoole@clearwaterpoole.co.uk
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk
Sandusky Walmsley	Bolton	Tony Pope	01204 396060	tpope@sanwal.co.uk
Voith Paper	Manchester	Keith Millington	0161 655 2912	keith.millington@voith.com

Products & Services Directory

COMPANY	LOCATION	CONTACT	TELEPHONE	E.MAIL
PEARL LUSTRE PIGMENTS				
Merck Chemicals Ltd	Poole	Stephen Harpham	01202 664727	stephen.harpham@merckscltd.co.uk
PILOT PLANT FACILITIES				
BC Paper	North Wales	Dr. Richard Quinney	01248 370588	r.f.quinney@bangor.ac.uk
University of Manchester	Manchester	Bob Wilde	0161 306 3904	r.wilde@umist.ac.uk
PIPEWORK & VESSEL FABRICATIONS				
Bender Forrest Ltd	Rossendale	Stefan Wilds	01706 225521	swilds@bendermachine.com
PITCH CONTROL				
Luzenac	Toulouse, France	Kari Alenius	0800 032 3114	kari.alenius@europe.luzenac.com
PRECISION PNEUMATICS				
Fine Controls	Wirral	John Donaldson	0151 343 9966	John@finecontrols.com
PROCESS CONTROL				
BTG	North Harrow	John Munday	020 8515 6050	sales@btgppt.com
Process Instruments (UK) Ltd	Burnley	Michael Oliver	01282 422835	michael.oliver@processinstruments.net
PROJECT ENGINEERING/CONSULTANCY				
Bender Forrest Ltd	Rossendale	Stefan Wilds	01706 225521	swilds@bendermachine.com
Clearwater Poole	Bury	John Poole	0161 797 3437	jpoole@clearwaterpoole.co.uk
PULP AND PAPER MILL DESIGNERS & ENGINEERS				
Clearwater Poole	Bury	John Poole	0161 797 3437	jpoole@clearwaterpoole.co.uk
QUALITY CONTROL INSTRUMENTS				
Process Instruments (UK) Ltd	Burnley	Michael Oliver	01282 422835	michael.oliver@processinstruments.net
Tendring Pacific	Saffron Walden	Anton Hutson	0870 240 1886	anton@tendringpacific.com
QUALITY INFORMATION SYSTEMS				
QISoft Limited	Leyland	Tim Perris	01772 641133	info@qisoft.com
RAW WATER TREATMENT				
Huber Technology	Chippenham	Jeremy Wakeham	01249 765000	wj@huber.co.uk
KWI (UK) Ltd	Flintshire	Phil Woollen	01352 700224	info.uk@kwi-intl.com
REBUILDS, MAJOR				
Clearwater Poole	Bury	John Poole	0161 797 3437	jpoole@clearwaterpoole.co.uk
Sandusky Walmsley	Bolton	Tony Pope	01204 396060	tpope@sanwal.co.uk
Voith Paper	Manchester	Keith Millington	0161 655 2912	keith.millington@voith.com
REBUILDS, RECONDITIONED PLANT/PARTS				
Clearwater Poole	Bury	John Poole	0161 797 3437	jpoole@clearwaterpoole.co.uk
REEL & PALLET WRAPPING SYSTEMS				
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk
REEL STANDS				
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk
REFINING AND DEFLAKING				
JOCRO Technology	Bolton	Joe Crook	01204 840937	bryants-house@supernet.com
Pilao International Ltd	Darwen	Mel Hadfield	01254 873871	info@pilao.co.uk
REPLACEMENT PARTS				
Clearwater Poole	Bury	John Poole	0161 797 3437	jpoole@clearwaterpoole.co.uk
Sandusky Walmsley	Bolton	Derek Lees	01204 396060	dlees@sanwal.co.uk
RF/AIR DRYING				
Greenbank Engineering	Blackburn	David Wilkinson	01254 690555	info@greenbanktechnology.co.uk
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk
ROLL GRINDING, REFURBISHMENT & SERVICING				
Bender Machine Services	Rossendale	Steven Withers	01706 225521	swithers@bendermachine.com
Sandusky Walmsley	Bolton	Tony Treloare	01204 396060	tatreloare@sanwal.co.uk
Voith Paper (Service Centre)	Manchester	Robert O'Shaughnessy	0161 655 2933	robert.o'shaughnessy@voith.com
ROLLERS				
Sandusky Walmsley	Bolton	Mike Valentine	01204 396060	mavalentine@sanwal.co.uk
ROTARY JOINTS AND SYPHONS				
Johnson Systems International Ltd	West Yorkshire	David Moss	01943 607550	dmoss@joco.nl
SEALS				
Advanced Sealing Solutions Ltd	Northampton	Paul Marchant	01604 830183	paul82@netlineuk.net
John Crane UK Ltd	Manchester	Gary Webb	07711 650660	gary.webb@johncranemcr.co.uk
SHOWER SYSTEMS/SPRAY NOZZLES				
Spraying Systems Ltd	Farnham, Surrey	Rowland Bailey	01252 727200	info@spray-uk.co.uk
SITE SERVICES				
Bender Forrest Ltd	Rossendale	Stefan Wilds	01706 225521	swilds@bendermachine.com
Clearwater Poole	Bury	John Poole	0161 797 3437	jpoole@clearwaterpoole.co.uk
SIZING				
Mare Paper Chemicals Group	Luton	Mitch Cook	01582 811900	mitch.cook@maregroup.co.uk
SLITTING & CUTTING EQUIPMENT				
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk

Products & Services Directory

COMPANY	LOCATION	CONTACT	TELEPHONE	E.MAIL
SLUDGE DEWATERING				
Huber Technology	Chippenham	Jeremy Wakeham	01249 765000	wj@huber.co.uk
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk
SLUDGE PROCESSING AND UTILISATION				
EnviroSystems (UK) Ltd	Preston	Liz Russell	01772 860085	liz@envirosys.co.uk
Huber Technology	Chippenham	Jeremy Wakeham	01249 765000	wj@huber.co.uk
SOLENOID & CONTROL VALVES				
Fine Controls	Wirral	Gareth Hall	0151 343 9966	Gaz@finecontrols.com
STEAM AND CONDENSATE SYSTEMS				
Johnson Systems International Ltd	West Yorkshire	David Moss	01943 607550	dmoss@joco.nl
STICKIES CONTROL				
Kolb Distribution	Lancashire	Malcolm Austin	07720 287460	malcolm.austin@kolb.ch
Luzenac	Toulouse, France	Kari Alenius	0800 032 3114	kari.alenius@europe.luzenac.com
STOCK CHEST CLEANING				
Spraying Systems Ltd	Farnham, Surrey	Rowland Bailey	01252 727200	info@spray-uk.co.uk
STOCK PREPARATION				
Sandusky Walmsley	Bolton	Alan Morley	01204 396060	amorley@sanwal.co.uk
Voith Paper Fibre Systems	Manchester	Darryl Holt	0161 655 2907	darryl.holt@voith.com
John Wilkie - Hett GmbH	Perthshire	John Wilkie	01764 685267	WilkieMaryfield@aol.com
STRETCH FILMS AND WRAPPING MACHINES				
Pesmel of Finland	West Yorkshire	Jukka Tamminen-Jackson	01924 848399	jukka.tamminen@pesmel.com
STROBOSCOPES				
Euroto Ltd	Bolton	Tony Aspinall	01204 665050	sales@euroto.co.uk
TALC				
Luzenac	Toulouse, France	Kari Alenius	0800 032 3114	kari.alenius@europe.luzenac.com
TESTING AND ANALYTICAL SERVICES				
BC Paper	North Wales	Rebecca Snell	01248 370588	r.snell@bangor.ac.uk
University of Manchester	Manchester	Bob Wilde	0161 306 3904	r.wilde@umist.ac.uk
THERMAL SPRAY/METAL SPRAY COATING SERVICES				
Bender Machine Services	Rossendale	Steven Withers	01706 225521	swithers@bendermachine.com
TRAINING				
Bury College	Bury	Heather Saul	0161 797 4325	heather.saul@burycollege.ac.uk
PITA Trainers	Bury	John Clewley	0161 764 5858	info@pita.co.uk
University of Manchester	Manchester	Bob Wilde	0161 306 3904	r.wilde@umist.ac.uk
USED RECONDITIONED MACHINERY				
John Wilkie Papermill Services Ltd	Perthshire	John Wilkie	01764 685267	WilkieMaryfield@aol.com
VACUUM PUMPS & SYSTEMS				
Flowtech Pumps	Manchester	Ian Pendleton	0161 794 8038	ipendleton@pumpgroup.co.uk
nash_elmo	Winsford	Alan Birchall	01606 542421	alan.birchall@nash-elmo.com
VALUATION SERVICES				
John Wilkie Papermill Services Ltd	Perthshire	John Wilkie	01764 685267	WilkieMaryfield@aol.com
VALVES				
Lohse GmbH	Croydon	Kevin Bracken	020 8667 3013	kevin.bracken@voith.com
VIBRATION EQUIPMENT				
Monitran Ltd	Buckinghamshire	Suzanne Pearl	01494 816569	suzanne.pearl@monitran.co.uk
WASTE TRIM REMOVAL SYSTEMS				
Jarshire Ltd	Slough	Bruce McNair	01753 825122	sales@jarshire.co.uk
WATER CLARIFICATION				
Huber Technology	Chippenham	Jeremy Wakeham	01249 765000	wj@huber.co.uk
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KWI (UK) Ltd	Flintshire	Phil Woollen	01352 700224	info.uk@kwi-intl.com
WATER RECOVERY				
Huber Technology	Chippenham	Jeremy Wakeham	01249 765000	wj@huber.co.uk
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WEB BRAKE DETECTION				
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WET/DRY STRENGTH RESINS				
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WIRE AND FELT CLEANERS				
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WRAPPING EQUIPMENT				
Pesmel of Finland	West Yorkshire	Jukka Tamminen-Jackson	01924 848399	jukka.tamminen@pesmel.com

Installations

Mill	Supplier	Equipment review
Andhra Pradesh Paper Mills (APPM) Rajahmundry Mill India	Andritz, Austria (Via Andritz Finland and Enmas Andritz Pte, India	A new fibreline, recovery island, and wood room upgrade which will increase the pulping capacity of APPM from 300 to 550 bd t/d. Start-up of the new line is scheduled for Spring 2006. Effluents to receiving waters and air emissions will be significantly reduced, even though the capacity of the mill will almost be doubled. The new recovery island consists of a 7-effect evaporation plant, 1,300 tds/d recovery boiler, recausticizing plant with a CD-filter, and an LMD lime kiln.
Asia Pulp & Paper Gold East Paper Dagang Mill China	Spooner Industries, UK (Via OEM Voith Paper Heidenheim)	A wide dryer comprising 6 air flotation dryers and 2 air turns for a PM line with a web width of 9.82 m. The 1899 mpm PM produces LWC and Art Paper. The nozzles have an operating air temperatures up to 400°C.The dryers operate at air velocities of 50 m/s.
Asia Pulp & Paper Tjiwi Kimia Mill Mojokerto Indonesia	Straw Pulping Engineering Spain	A €6.3 million order for the stock prep line, approach flow, fibre recovery and broke treatment systems for the PM12 line which will produce 10,000 tpm of coating base from LBKP, NBKP and TMB pulp. The project includes engineering, equipment supply, installation and start-up - and also the optimisation and the baby sitting of the plant. Delivery this May for start-up in July 2005. SPE specialises in pulp production from non-wood materials.
Aracruz Celulose Guaiba Mill (former Riocell) Brazil	Kvaerner Pulping (Via Kvaerner do Brasil)	A $12 million order to modernise the bleach and recausticizing plants, as part of an upgrade which will increase nominal capacity to 430,000 tpy of bleached eucalyptus pulp. The rebuilt bleach plant will comprise a three-stage bleaching sequence, including a new Compact Press™. The recausticizing plant will be equipped with a new PDW™ filter and a new lime mud filter. It will produce 5,200 m^3 white liquor per day after the rebuild. Start-up is scheduled for Nov 2005.
Arctic Paper Sweden	webMethods Inc	An Enterprise Services Platform to create an integrated technology infrastructure within Arctic Paper's graphic paper operations in Sweden and Poland. Arctic Paper has various Enterprise Resource Planning (ERP) systems - from Maximo and PeopleSoft, for example. When these systems are integrated with data residing at three separate locations in Sweden and Poland, information from the discrete ERP systems will automatically flow through a chain of linked applications. The new platform will also enable Arctic Paper to integrate its vendors, suppliers and customers in enterprise planning.
Billerud Gruvön, Karlsborg and Skärblacka Mills Sweden	Kvaerner Power www.akerkvaernercom	Three power boiler conversions - from grate boilers to bubbling fluidized bed (BFB) technology to burn biomass. Start-up at the end of 2005. Billerud is investing around €115 million in the energy field and, with the substitution of biofuels for oil, will increase its internal generation of electricity and cut oil consumption by two thirds. The investment will also reduce carbon dioxide emissions.
	Kvaerner Pulping	An oxygen delignification system for Gruvön Mill. It will be used in the birch fiberline and is part of a quality and environmental improvement programme. Start-up is scheduled for Nov 2005. This will be the one-hundredth oxygen delignification system supplied by Kvaerner In 1970 Kvaerner Pulping – then Kamyr - installed a system at SAPPI's Enstra Mill in South Africa. The technology has gone through MC delignification and 2-reactor systems to the state-of-the-art Dualox system.
Cheongwon PanAsia Paper Korea	Voith Paper	An EcoCell post flotation system for the extension of the deinking line to a two loop system. The aim is to enhance newsprint quality. Also includes the modification of the disperger system. The EcoCell, which will handle 595 tpd of deinked stock will be manufactured by Voith's stock prep licensee, R. Dan and Co, in the Philippines. The original stock prep system was supplied by Voith in 1994.
China Banknote Printing & Minting Corp Kunshan Mill Jiangsu Province China	Voith Paper Manchester	A 2 x 2 roll Ecosoft modular calender for the banknote and security grade PM which has a sheet width of 1132 mm and an operating speed of 120 mpm. The calender will be manufactured at Manchester and delivered this summer. The mill is situated close to the Voith service centre in China.
CMPC Celulosa Santa Fe Mill Nacimiento Chile	HPD Veolia Water Company	A 1050 tph black liquor evaporation system for the new 780,000 tpy Line which will start up in late 2006 and produce Bleached Eucalyptus market pulp. Designed to minimize steam usage and boil-out requirements, the system will utilize tubular falling film technology to process black liquor from 14.4% to 80% total solids. A switching system will provide for a continuous wash of one of the 4 first-effect concentrator bodies.

Mill	Supplier	Equipment review
Dr Franz Feurstein Traun Speciality Mill Austria	Pesmel, Finland	A roll wrapping and handling system for the new PM 3 line. Comprises axial and radial wrapping stations which use stretch film and an integrated roll-handling system between the slitter and the warehouse. The packing material rolls are changed automatically; the entire reel handling and packing area is unmanned - an operator is only needed only to change the packing material magazines. Start-up at the end of 2004. Another Pesmel line wraps the paper rolls from two Traun PMs.
Georgia-Pacific Sheffield Converting Plant UK	British Turntable Co. Hovair Systems Division www.british.turntable.co.uk	The Sheffield plant of Georgia Pacific has installed an air film turntable which streamlines the loading of large tissue reels into converting machinery - four reels can be made ready for the crane rather than one. A reel a placed on the 3.6 m dia turntable by forklift and then turned through 90° so that another three reels can be loaded for pick-up by the crane which feeds the converter - in the normal orientation, only one reel can be made ready for the crane.
Georgia-Pacific Palatka Mill, Florida USA	BTG Pulp and Paper Sensors Säffle, Sweden	16 BTG MEK-2300 transmitters for consistency measurement. They will be installed in the new wash lines and improve consistency control and productivity while reducing production costs. Palatka's new bleach plant is equipped with BTG sensors.
Goznak Group St. Petersburg Paper Mill Russian Federation	KPL Packaging Körber PaperLink Group Germany	An automatic folio-size ream wrapper – the Grande Risme Easy Compact .The GREC is an automatic wrapper with a footprint the size of a family car. The St. Petersburg unit is a single rotary sheeter with a dual shaftless rollstand and web delivery system. It has individual automatic web tension control and a reject gate and will convert conventional and security paper qualities in the 50 to 200 gsm range. It covers sizes from A4 to 1.450 x 1.500 mm at a max production speed of 300 m/min.
	Pemco Körber PaperLink Group	A SHM folio-size sheeter which will cut reams to be packed on the GREC. The SHM 1450 and GREC will give the mill a competitive edge since in Russia manual packaging is still usual.
Gulf Paper Industries Riyadh Saudi Arabia	Over Meccanica Italy	A new tissue line with a crescent former. It will produce 100 tpd of facial tissue in the 12.5 to 45 gsm range. The trim width will be 2.8 m and the operating speed 2,000 mpm. Start-up this Autumn.
Interstate Paper Riceboro, Georgia USA	Metso Paper	A press rebuild for PM1, a linerboard machine with a wire width of 4.775 m Includes a straight-through press followed by a shoe press which designed to run at 915 mpm and improve dryness, reduce draw and provide greater strength development. Also includes, modification of the first dryer section, automation controls, a press pit pulper and the upgrade of the PM drives. Start-up in late 2005.
Kappa SSK Birmingham UK	QISoft www.qisoft.com	QISv5 quality information software which provides real time information and reporting of product quality data. The distributed information management system provides a 'single window' view of operational data from one or more disparate sources. The old database has been replaced by a QIS database which uses standard query language (SQL) and is deployed via an Citrix Terminal Server installed in the production, technical and laboratory areas of the mill. Initially, QIS was installed on a 30-day trial basis to assess functionality and performance and to train the operators. There are plans to extend the new system throughout the mill and interface QIS with process and business systems to provide a complete "information" picture. SSK produces 185,000 tpy of packaging grades from 205,000 tonnes of waste paper.
LEIPA Georg Leinfelder Schwedt Mill Germany	Spooner Industies, UK (Via OEM Voith Paper, Heidenheim)	A very wide air flotation dryer for the PM4 line The unique nozzle arrangement and air supply system ensures very consistent pressure and temperature profiles across the full width of the machine. Spooner supplies paper mills and OEM's.
Mayr-Melnhof Group	DiMS! organizing print (Vi Syn-Group)	A multi-lingual ERP system which will streamline the vast operations of Mayr-Melnhof, a producer of folding cartons with 25 plants in 11 countries. The DiMS! System, which is used by leading printers, will standardize processes, centralize critical management information, and equip the company with standard working methods. DiMS! sees packaging packaging as a strategic target markets for future expansion.
Melitta Haushaltsprodukt Berlin Mill Germany	Voith Paper	The rebuild of the approach flow system of PM4, a speciality machine which produces filter papers. Initially planned as a simple replacement of the cleaner plant, the rebuild now comprises a 2-stage dilution system with 2 fan pumps. The 3-stage cleaner installation is designed for maximum separation efficiency even at higher stock consistencies. The rebuild took place during the 2004 Christmas shut.

Mill	Supplier	Equipment review
Myllykoski MD Lang Papier Plattling Mill Bavaria Germany	Metso Paper	The rebuild the PM 11 which produces LWC magazine papers. Includes a new dilution headbox, an OptiFormer wire section, the rebuild of the press section and modifications to the dryer section. In addition, there will be an upgrade of the groundwood plant with the installation of HC, post refining equipment and the fitting of WaterJet stone conditioning devices to the chain grinders. The project will increase capacity. The PM will be recommissioned in December 2005. The MD Platting project is part of a €40 million investment in Myllykoski's Finnish, German and US Mills.
Myllykoski Madison Paper Industries Madison, ME North America	Metso Paper	The expansion of the pressure groundwood plant. Includes a new grinder - No 6 in the mill - and an update and extension of the metsoDNA process control system. Delivery in October 2005.
Myllykoski Paper Anjalankoski Mill Finland	Metso Paper	The main components of a peroxide bleaching plant for PM 6-7. Start-up is scheduled for early 2006. The order also includes the preparation plant for bleaching chemicals and a metsoDNA process control system with field instruments. The target is to improve the quality competitiveness of the SC paper produced.
Neusiedler Kematen Mill Austria	Bellmer	A €2 million ($3 million) contract to rebuild PM 3, a 25,000 tpy machine which produces uncoated woodfree paper, tinted and white. Includes the overhaul the wire section to improve quality and increase capacity by 1000 to 2000 tpy. The rebuild will take place during a 10 day shut in August. Another €3 million is earmarked for additional upgrades.
Norske Skog Worldwide	HP Norge	A global outsourcing agreement which will i) reduce the IT costs of the Norwegian paper group by 10-15% and ii) improve the return on IT investment by some 20-30% - by integrating and standardizing all aspect of IT. HP is responsible for infrastructure operation - the hardware and operational services – with Norske Skog paying per workstation. Some 4,600 stations are covered by the Nk 300 million ($48 m) contract. This could increase to Nk 500 million over a six-year period, with an option to extend the life of the agreement by another two years.
Rottneros Vallviks Bruk Mill Sweden	Kvaerner Power www.akerkvaernercom	A concentrator rebuild. Start-up in autumn 2005.
SCA Hygiene Valls Mill Barcelona Spain	PMT Italia	A turn key contract for a new 60,000 tpy tissue line. Includes: a bale handling system, stock prep plant; tissue machine, roll handling system and auxiliary systems -: water system, vacuum plant, steam, dust removal and mist removal; lube and hydraulic units. Also includes: the controls and electrification (DCS, QCS, MCC & drives, Trafos & MT) and the auxiliary systems-: compressor plant, boiler house, cranes, hall ventilation system, air conditioning for electrical rooms, waste water treatment plant. Start-up is expected towards the end of 2005.
Shinho Paper Junju, Asan, Osan and Pyeontack Mills South Korea	Voith Paper Automation	The maintenance of the automation systems in four mills, as of 1 December 2004. Includes services for maintenance support and emergency assistance, especially for quality measurement systems. Shinho Paper operates seven paper mills with a total capacity of 550,000 tpy of P&W grades and 150,000 tpy of industrial paper.
Smurfit Munksj Aspa Bruk Mill Sweden	Kvaerner Power www.akerkvaernercom	An evaporation plant upgrade to include three new effects and a new stripper. The capacity of the plant will be increased to 250 tons of water per hour. Start-up in autumn 2005.
Stora Enso Publication Paper, Varkaus Mill Finland	Metso Paper petri.tolonen@metso.com	A fully automated, non-hydraulic, multistation roll wrapping machine and the rebuild of two winders and reel on the PM4 line. The project will enable a single operations team to control roll wrapping and winding. Start-up in Dec 2005. The StreamLine utilises electric rather than Hydraulic functions thereby eliminating the handling of oil. Wrinkle-free wrapping is ensured by new feeding and tension control systems. The wrapper is equipped with two industrial robots and has a capacity of 120 rolls/hour. Varkaus produces 290,000 tpy of newsprint, improved news and directory paper on two PMs.
Stromsdal Juankoski Mill Finland	Junkosken Biolampo Finland	A €9 million biofuel boiler which will produce steam for the board mill and district heating energy for Juankoski households. The boiler will be fuelled by domestic biofuel and by bye- products from the mill. At the moment, the mill's two steam raising boilers consume an annual 9,000 tons of heavy oil. Start-up is scheduled for early 2006. Juankosken Biolämpö is owned by: City of Juankoski (30%), Stromsdal Oyj (30%) and Termia Oy (40%).

Mill	Supplier	Equipment review
Torraspapel Torraspapel SA Spain	Voith Paper	An automatic Twister roll wrapping line to replace an old system. On the new line, all stations are placed on a continuous slat conveyor, so that the rolls can be wrapped in passing. This eliminates the usual jolts and catches and ensures smooth operation. The Twister has two industrial robots for the application of the headers and labels. It wraps 60 rolls an hour. Installation and start-up in Jan 2005.
UPM-Kymmene Scotland Caledonian Mill UK	Andritz, Austria	The conversion of the Peroxide Medium Consistency (PMC) bleach plant to Peroxide High Consistency (PHC) with post-bleach washing. Includes the basic engineering, main equipment, and erection services. PHC bleaching is state-of-the-art Andritz technology for bleaching mechanical pulps and it will enable the mill to produce higher pulp quality for its LWC grades. The use of peroxide at HC preserves optical fibre properties and reduces chemical consumption. Start-up in 4Q 2005.
UPM-Kymmene Changshu Mill China	Metso Automation	Two IQInsight full-sheet moisture measurement solutions - one for the new PM1, being built by Metso Paper, and one for the modernized PM2. By separating and defining MD and CD variations, IQInsight is a greater aid to machine diagnostics and control than traditional scanners, says Metso. The 450,000 tpy PM1 will produce uncoated copier and offset grades, increasing the mill's total capacity to 800,000 tpy. Startup is scheduled for mid-2005.
Weyerhaeuser Grande Prairie Pulp Mill Alberta Canada	Aker Kvaerner Subsidiary of Kvaerner Power	A recovery boiler designed for maximum power generation with ratings of 2170 tons dry solids/day and steam parameters of 510°C and 103 bar. The project will be completed in early 2007. Grande Prairie is one of Weyerhaeuser's 11 pulp mills. It has an annual output of 340,000 tons of air dried paper grade pulps, specialty pulps and bleached sulphate market pulp.

Recruitment

Coming Events

The Theory and Practise of Refining

Pira is to hold a two day course on *The Theory and Practise of Refining* at the Catalonia Barcelona Plaza Hotel in Barcelona, Spain on 28 Feb and 1 March 2005 – immediately before International Refining Conference.

Designed for newcomers to the industry and as a refresher course, it will cover the key parameters of the refining process and the use of established refining theory to improve efficiency.

Led by Colin Baker, the course will be run as a workshop - participants are encouraged to submit actual mill problems for discussion. Topics will range from the unit operations of stock prep and their interactions to fibre development, stock uniformity to the PM and process and quality control.

Fibre Engineering – the emerging technologies

A one day Impact Forum on Fibre Engineering will be held at the Catalonia Barcelona Plaza on 4 March, the day after the conference. It will cover the latest techniques for fibre engineering and how they can be put into practise – enzymatic treatment; genetic modification and polyelectrolyte multilayering (PEM), for example.

The Forum will examine advances being made in the laboratory, the impact this technology will have in paper mills and the implications for the industry.

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Refining and Mechanical Pulping International Conference

The 8th annual conference on *Refining and Mechanical Pulping* will be held in Barcelona on 2 and 3 March by Pira International. It will be preceeded by a two day Course on *The Theory and Practise of Refining* and followed by a one day Impact Forum on *Fibre Engineering*. The entire event will run from 28 February to 4 March.

The venue is the Catalonia Barcelona Plaza Hotel in Barcelona.

The conference programme will cover the latest theories, technologies and real-life mill applications in refining, a process which can either make or break the grade - inconsistent product quality and poor PM runnability are just some of the consequences of inadequate refining.

Since the refining process is notoriously inconsistent, the programme will focus on the accurate measurement and control of pulp quality. The measurement of machinery performance and treatment levels will be illustrated in research presentations and case studies from pulp and paper mills. The latter include Aracruz, Domtar and Stora Enso.

Aracruz Celulose, Brazil: B. J. Demuner, will present a paper on Ultra low intensity refining of eucalyptus pulps. The co-author is D. Robinson of Finebar, US. They will cover:

- Impact of ultra low intensity refining on key eucalyptus pulp properties - tensile strength, bulk and opacity
- The role of refining conditions on the treatment of vessel segments
- New refiner plate technology for ultra low refining
- PM performance using ultra low refining intensity on 100% eucalyptus furnish

Stora Enso, Sweden: Anders Moberg, will discuss the selection of reinforcement pulp – the influence of refining conditions on a LWC base paper. He will cover:

- Furnish composition through a case study
- Screening for relevant fibre properties correlation to sheet properties
- Varying influence of refining conditions depending on fibre type

Domtar, Canada: Dr. Harshad Pande will cover the impact of hydrocyclone fractionation of fibres on papermaking

From the UK, there will two presentations - on advances in refining practicalities and on fractionation and - by Colin Baker, Consultant and Dr. Bob Wild of the University of Manchester who will cover:

- UK pilot scale optimisation of refining conditions for fractionated recycled furnishes
- Related developments for improved refining of blended virgin furnishes
- Conventional refining of fractionated recycled furnishes
- Experimental programme - a new refining strategy for RCF

Colin Baker will discuss: Conical vs double disc vs cylindrical; Mixed vs separate refining; Refining intensity required and Developments in screening

During the rest of the programme, specialists from academia and industry will cover the latest scientific and technical developments in: Pre-treatment of chips; High and Low consistency refining; Energy consumption and refining intensity; Disc geometry: Load distribution: Compression refining and the emerging measuring technologies based on Soft sensors, Fibre morphology and Relative Bonded Area

In the opening presentation, Dr. Richard J. Kerekes of the University Of British Columbia will link the process to the refining result. He will cover: HC v LC refining; Refining intensity - energy and force based characterisations; Fibre strains and the refining result; Theoretical energies; Heterogeneity of treatment.

The remaining presentations are grouped into three sessions on Measurement and Control; Refining specific fibres and Refining parameters and pulp properties.

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There will be presentations by leaders in the field:

Fibre engineering: Professor Tom Lindström, STFI-Packforsk and KTH Sweden will discuss the principles of fibre surface engineering principles and new surface modification methods

Fibre engineering at Weyerhaeuser: Mike McCaw of Weyerhaeuser will present case histories on Fibre Modification to create specific end use properties; Physical, chemical and biological modification.

Innovative fibre design: Dr. Arthur J Ragauskas, Associate Professor, IPST, Georgia Institute of Technology, will cover: Role of fire chard in fibre bonding; Impact of amphoheric fibre charge; Dielectric barrier discharge and enhanced wet strength; Bleach plant mill opportunities; Future fibres and new product platforms

Fibre genetics and enviro effects: Dr. Ergilio Claudio-da-Silva Jr. of Aracruz will cover: Market pulp key business aspects; Impact of genotypes on fibre quality; Environment, productivity and fibre quality; Value creation at Aracruz - the fibre platform concept

Fibre engineering with PEM: Professor Lars Wågberg, Royal Institute Of Technology, Sweden will cover: Fundamental aspects of polyelectrolyte multilayering (PEM) on fibre surfaces, Polyelectrolyte selection and fibre properties; Enhancing strength properties and creating interactive fibres by PEM treatment

Enzymes – altering fibre and paper performance: Henrik Lund of Novozymes, Denmark will discuss: The papermakers enzyme toolbox; Enzyme performance versus mechanical treatment; Results of enzyme treatment on fibre and paper quality

Improved fibre performance through enzymatic modification: Anna Suurnäkki of VTT Biotechnology, Finland will present case histories of process improvement - enzymatic energy saving, improved drainage and improved PM runnability; Improved and new fibre properties; Commercialisation

Enzyme technology for improved drainability of recycled paper: Dr. Henry van der Valk, of Agrotechnology and Food Innovations, The Netherlands, will discuss: Which enzymes to use; Enzyme action under mill conditions; Residence and contact time; Modelling enzyme behaviour on the machine; Enzyme recycling degradation; Flow of process waters; Cost efficiency

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Measurement and control of the refining process

Relative Bonded Area (RBA) measurement of pulp is the theme of Jocco C. Dekker, of Wageningen Paper And Board, Netherlands. He will discuss: Benchmark refining in the Dutch paper industry; Changed fibres measured by RBA ; Refiner set and changed fibres percentage, Lab beating and mill refining

Fibre morphology as a control for refiner systems is the theme of Ola Johansson of J&L Fiber Services, US. He will cover: Common denominators for refiner systems; Indirect vs direct measurements; Open architectures, customisation and reduced support.

Soft sensors for the measurement of refining parameters will be covered by Professor Anders Karlström of Chalmers University Of Technology, Sweden. He will cover: Sensor dependability and durability and the creation of a trustworthy control sytem -developments in technology and software; testing methods for fibre sensor technologies and on line trials of a new model.

Refining of specific fibres

Refining softwood kraft is the theme of Dr. Eero Hiltunen of KCL, Finland. He will cover: fibre length distribution and wall thickness; Advanced fibre analysis; Fibre swelling vs wall thickness; Fibre straightening vs stretching.

Scandinavian market SBK -Fibre properties and refining response is the theme of Ulla-Britt Mohlin of STFI-Packforsk, Sweden. She will discuss: Pulp strength and shortening; Fibre kink and segment length to follow fibre straightening; Unrefined pulp quality in relation to optimal refining intensity.

Compression refining and the property development of virgin and recycled fibres is the theme of Klaus Eibinger, of IPPGT, Graz University Of Technology, Austria. He will present a trial setup in a modified PFI mill and discuss: compression vs conventional industrial refining; the improved dewatering and energy saving potential, CR and the Compression refining of printed waste papers.

Impact of refining parameters on pulp properties

Load distribution: Professor Jean-Claude Roux of Ecole Française De Papeterie Et Desindustries Graphiques, France will discuss how the load is distributed in an industrial disc refiner. He will cover: specific edge load; sliding bar velocity; power consumed; radial distribution of the load; Total pressure applied

HC refining: Dr. Oddbjørn Eriksen of PFI, Norway will present a paper on Examination of HC refining by pressure and vibration analysis. He will discuss: Measuring high frequency pressure pulses and vibrations; pressure pulse locations on new and worn plates; the influence of the pulp flow by pressure wave propagation; the correlation between chip feeding and pressure readings.

Disc geometry: Kari Koskenhely of Helsinki University of Technology will cover: Modification of disc geometry and refiner performance – including convergent gap filling and groove flow fillings

LC refining: Professor Bruno Lönnberg of Åbo Akademi, Finland will talk on Energy balance in LC refining. He will cover: frictional and idling power losses; effective energy absorption and SEL or equivalent parameters; energy absorption and pulp properties

Pre-treatment with cartapip, a commercial albino sapstain fungi: Professor Gunnar Henriksson, of the Royal Institute of Technology, Sweden will present a paper on the Influence of cartapip pre-treatment on TMP properties. He will discuss extractive content, pulp brightness, strength and bulk.

Pre treatment fungal and acid: John H. Klungness of the USDA Forest Service, Forest Products Laboratory will present a paper on Novel cost effective, energy efficient pre-treatments for TMP. He will cover the fungal and oxalic acid pre-treatment of chips and Microwaving logs.

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Calendar of World Events

Date	Event	Venue	Organiser
FEB 2005			
7-10	PaperWeek International 2005 PAPTAC Conference & EXFOR	Montreal, Quebec, Canada	PAPTAC www.paperweek.ca
24-25	World Newspaper Advertising Conference & Expo	Sheraton Hotel, Rome, Italy	World Association of Newspapers: Tel: +33 1 4742 8500 Fax: +33 1 4742 4948 email: contact_us@wan.asso.fr www.wan-press.org
MARCH 2005			
1-4	ForestLeadership Conference	Wyndham Bristol Palace Hotel Toronto, Canada	ForestLeadership: Tel: +1 514 274 4344; Fax: +1 514 273 8069; email: info@ForestLeadership.com www.ForestLeadership.com
14-18	Paper Science Training Week	Pira International Leatherhead, UK	Pira International, Tel: 01372 802041 Fax: 01372 802243; email: tomc@pira.co.uk www.piranet.com
14-16	PITA Coating Conference 2005	Hanover International Hotel, Bradford	PITA, John Clewley Tel: 0161 764 5858; Fax: 0161 764 5353
APRIL 2005			
5-7	Tissue World 2005	Acropolis Palais des Expositions Nice, France	Paperloop, PPI, Pulp & Paper Tel: +32 2 536 0752 Fax: +32 2 537 5626 email: agehot@paperloop.com www.tissueworld.com
APRIL 2005			
10-13	Paper Week	Waldorf Astoria Hotel New York, USA	AF&PA; Tel: +1 800 878 8878 email: info@afandpa.org www.paperweek.org
13-15	RISI European Pulp & Paper Conference	Le Méridien Hotel Nice, France	RISI/Paperloop; Tel: +1 781 734 8936 email: thompson@resourceinfo.com www.resourceinfo.com
20-22	FEFCO Technical Seminar	Nice, France	FEFCO: Tel: +32 2 646 40 70 Fax: +32 2 646 64 60 email: information@fefco.org www.fefco.org
20-23	TECNICELPA 19th Annual Meeting Innovation and Competitiveness	Hotel dos Templários, Tomar, Portugal	TECNICELPA, Cesaltina Baptista Tel: +351 249 324 858
MAY 2005			
11-13	36th Annual PRIMA Conference	Hamburg, Germany	PRIMA; Tel: +43 316 5737 2088; Fax: +43 316 5737 206 email: office@prima-papernetwork.org www.prima-papernetwork.org
16-19	59th Appita Annual Conference and Exhibition	Sky City Auckland Convention Centre, Auckland, New Zealand	Appita; Tel: +61 3 9347 2377 Fax: +61 3 9348 1206 email: info@appita.com.au www.appita.com.au
16-19	International Symposium on Wood, Fibre and Pulping Chemistry	Sky City Auckland Convention Centre, Auckland, New Zealand	Appita; Tel: +61 3 9347 2377 Fax: +61 3 9348 1206 email: info@appita.com.au www.appita.com.au/Conferences.htm
JUNE 2005			
1	18th Annual Global Forest and Paper Industry Conference	Westin Bayshore Resort & Marina, Vancouver, Canada	PricewaterhouseCoopers Tel: +1 604 806 7086 email: angie.dosanjh@ca.pwc.com www.pwc.com
1-3	Global Forest and Paper Summit	Westin Bayshore Resort & Marina, Vancouver, Canada	Forest Products Association of Canada Tel: +1 613 563 1441; Fax: +1 613 563 4720; email: info@globalforestpapersummit.com www.globalforestpapersummit.com
14-16	International Pulp Bleaching Conference	Stockholm International Fairs Sweden	STFI/SPCI/TAPPI/PI/APPPITA/PAPTAC Tel: +1 514 630 4100; Fax: +1 514 630 4134 email: rberry@paprican.ca www.paptac.ca
14-16	SPCI World Pulp & Paper Week 2005	Stockholm International Fairs	SPCI/Adforum; Tel: +46 8 783 80 00 Fax: +46 8 667 75 09 email:info@adforum.se www.spci2005.com
SEPT 2005			
20-22	China Paper 2005	China International Exhibition	E.J. Krause & Associates Tel:+49 301 493 5500; Fax:+49 301 493 5705 email: deutch@ejkrause.com www.chinapaperexpo.com

Date	Event	Venue	Organiser
28-30	XV International Papermaking Conference Efficiency of Papermaking and Converting Processes	Wroclaw, Poland	Association of Polish Papermakers Tel: +4842 630 01 17; Fax: +4842 632 43 65 email: info@spp.pl
NOV 2005			
22-24	International Converting Exhibition	MOC Exhibition Centre Munich, Germany	Nimble Shows & Media Tel: +49 8033 91231; Fax: +49 8033 91288 email: info@ice-x.com www.ice-x.com
MARCH 2006			
5-8	Paper Arabia 2006 (Paper, Tissue & Corrugated Industry)	Dubai Intl. Exhibition Centre Dubai, United Arab Emirates	Al Fajer Information & Services Tel: +97 1 4337 7727; Fax: +97 1 4337 8788 email: alfajer@emirates.net.ae www.alfajer.net/paperarabia
13-15	PITA Papermaking Conference 2006	Hanover International Hotel, Bradford	PITA, John Clewley Tel: 0161 764 5858; Fax: 0161 764 5353

PITA COATING CONFERENCE REGISTRATION FORM

Registration Form

PITA COATING CONFERENCE

Optimising Quality and Cost in Coated Papers

15th & 16th March 2005

Hanover International Hotel & Club, Bradford

Please register the following delegate

Name
Position
Company
Address
Telephone **Fax**

I wish to attend the PITA Coating Conference on (please tick appropriate box)

Both Days (includes Conf. Dinner) ☐ Day 1 only ☐ Day 2 only ☐

Number of additional conference dinner tickets required ☐ **at £41.13** (VAT incl)

Total Fee (see price schedule) ☐ Please find enclosed cheque ☐ Please invoice my company ☐ I wish to pay by Credit Card ☐

Please debit my VISA MasterCard
Visa/Mastercard/Eurocard No.
Cardholder's Name **Expiry Date**
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Signature **Date**

Please advise of any special dietary requirements, e.g. vegetarian, or if any other special assistance is required.

Please complete the details above and send to:

John Clewley, PITA, 5 Frecheville Court, Bury, Lancashire BL9 0UF

Tel: 0161-764-5858 Fax: 0161-764-5353 e.mail: info@pita.co.uk

Fees are payable in advance and cheques should be made payable to PITA. An invoice/receipt will be sent to you as confirmation upon receipt of the registration form. Please use one form per delegate. Photocopies are acceptable. If payment in Sterling against a UK bank is impossible, please add £10 or US$15 to your payment to cover bank charges, etc.

17.5% VAT is payable on all UK & overseas bookings for conferences held in the UK.

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NOTE: PITA does not accept liability for any loss of, or damage to, the personal effects of delegates attending the conference. PITA reserves the right to cancel, defer or modify the event or conference proceedings without prior notice. Programme details are correct at time of going to press.

Have you registered yet?

FOR FULL EVENT DETAILS VISIT: www.pita.co.uk