PULP DIRECT

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The Biofore Company UPM

UPM PULP • CUSTOMER NEWSLETTER

KNOWLEDGE TO **BUSINESS**

UPM PULP RESEARCH has a straightforward goal: ensuring the ability to supply quality fibre. A certain mind-set and way of working are required to achieve this aim.

Mats Backman, Director, Technical Customer Service since March 2015. Previously, Mats was in charge of Pulp R&D.

"Our pulp researchers are not your typical scientists holed up in a laboratory. Instead, they play an active role in customer projects and at our mills," explains **Mats Backman**, Director, Technical Customer Service.

The sales, technical customer service and fibre specialists in R&D form a solid team, and they all have predetermined points of contact with customers.

"The number one priority for many customers is access to pulp of consistent quality, and we ensure this by always providing the right person to assist them. We recognise the challenges that our customers face in their own manufacturing operations."

Mats points out the two major strengths of UPM in R&D:

"Firstly, we are thoroughly familiar with the entire value chain from forest to final product. Wood raw material is the starting point for each UPM product, and we understand how fibre affects paper properties and how to get optimal end results."

"Secondly, we have a clear focus. Everything that we do is linked to our business and product portfolio."

RESEARCH PROJECTS ON A NEED-TO-DO BASIS

Whether a case of troubleshooting or a development assignment, UPM Pulp R&D projects are always based on customer requirements.

"Customers need to know the production parameters that will realise the best potential from our pulps. Our people provide concrete research findings to support practical decisions," Mats explains.

Changes are the most common reasons for seeking research advice. Customers seeking to modify a product and expand into new markets may need to change virtually every aspect of manufacturing, including furnish, refining, energy input and target properties.

"It's our job to find out what happens when you adjust a process using our pulps. Thanks to our testing and wet end analysis expertise, customers don't have to guess."

The systematic UPM process involves working with the staff of customer mills to plan and implement precise test runs, taking and analysing samples, and suggesting changes in refining and furnish.

A TRULY GLOBAL R&D PRESENCE

UPM's business environment is also continually evolving, and with end-customers becoming increasingly conscious of quality and price, sustainability and energy have emerged as dominant trends and consumers have more power than ever.

This called for a strategic decision at UPM to maintain a substantial R&D presence in order to stay ahead of the competition.

THE NUMBER ONE PRIORITY FOR MANY CUSTOMERS IS THE AVAILABILITY OF CONSISTENT QUALITY PULP. TO ACHIEVE THIS, WE ALWAYS HAVE THE RIGHT PERSON TO ASSIST THEM.

"Our vision is to be the frontrunner of the new forest industry. This requires in-house research expertise and resources. No one else will pave the way for us," Mats says.

The R&D network at UPM comprises three research centres and a competence centre in Fray Bentos, Uruguay. The largest centre is in Lappeenranta, Eastern Finland, where more than a hundred researchers focus on fibre raw materials, enhanced pulping and papermaking processes, and groundbreaking new biofuels and biochemicals.

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UPM has research and competence centres around the world.

KNOWLEDGE TO **BUSINESS**

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The Augsburg centre in Southern Germany concentrates on recycled fibre, while the UPM Asia R&D Centre in the Chinese city of Changshu is responsible for studying local projects and providing regional technical customer service support.

The three R&D centres serve all UPM operations and work seamlessly across the company.

"Internal communications are crucial in an R&D organisation on this scale, and we are always ready for interdisciplinary collaboration. There is no sense in starting a pulp customer case from square one when your colleagues in paper research may have already developed a solution for it."

The Fray Bentos competence centre stands apart from the rest of the company's research function in both scale and role.

"Fray Bentos is a smaller, but fully integrated forestry and fibre research facility with a single objective: to understand and develop optimised eucalyptus species for pulps manufactured at the Fray Bentos mill," Mats explains.

HIDDEN WORK – MAJOR BENEFITS

Pulp research is not always directly related to products, customers or partners. Some successful projects conducted behind the scenes nevertheless have a substantial impact on mill efficiency and sustainability performance at UPM.

"We have managed to minimise water consumption and waste in our own processes, and we have also found new ways of optimising the use of resources such as wood and chemicals," Mats says.

And the outcome of these endeavours is that the company's pulp mills in Finland and Uruguay remain in great condition, supplying pulp with excellent environmental qualities.

"Customers using our pulp are increasingly able to make their own processes and products more sustainable."

GETTING CLOSER TO **CUSTOMERS**

At the beginning of March 2015 **Mats Backman** took up the position of Director, Technical Customer Service at UPM Pulp, and is now in charge of the company's dynamic technical customer support organisations in Europe and Asia.

"I'm really excited at this opportunity to work more closely with our customers and understand their needs, as this enables us to provide the right pulp for their processes and products."

Mats is a long-serving UPM staffer who has previously held various technical and managerial positions within the company. For the past two years he has been directing R&D operations at UPM from a base in Fray Bentos, gaining in-depth knowledge of both eucalyptus fibres and Uruguay.

His earliest work in this country was on a joint study of eucalyptus plantations by Kymmene and Shell in the 1990s, and he was also involved in the initial planning phase of the Fray Bentos pulp mill.

As a hands-on fibre expert, Mats is now ready to tackle future challenges.

"Together with our Technical Customer Service and R&D experts, we will do our best to make sure that customers get the most out of our pulps."

UPM'S R&D GIVES NEW LIFE TO RECYCLED MATERIALS

UPM's Biofore strategy is based on the versatile use of renewable wood biomass, combined with innovation, resource efficiency and sustainability. The purpose is to replace non-renewable materials with renewable, recyclable and low-impact alternatives – the main drivers for bioeconomy.

Improvements in material efficiency make it possible to consume fewer resources and raw materials in production processes. Therefore, UPM's R&D work has expanded its focus to the more efficient use and reuse of side streams. The most recent examples are UPM's Elurit and Cinerit construction products that are made of fly ash from the thermal recovery of biogenic waste materials.

All of UPM's businesses and R&D centres have adopted ecodesign in their product development processes. This means that environmental aspects are systematically integrated into product design at an early stage.

UPM is the world's largest user of paper for recycling for the production of graphic papers.

UPM ProFi composite products are made from the surplus paper and plastic left over from the production of self-adhesive label materials.

UPM's renewable diesel, **UPM BioVerno**, is produced from crude tall oil, a residue of pulp production.

UPM's construction product **Cinerit** is made of fly ash from the thermal recovery of biogenic waste materials.

UPM's new product **ELURIT**, made of fly ash, can be used at the pulping and bleaching stages of the papermaking processes.

GETTING IT RIGHT:

PUTTING RESEARCH INTO PRACTICE

Having concrete, reliable performance data and test results at your fingertips can be a game changer when it comes to optimising refining and furnish on your paper machine.

▲ Roberto Mirande, Technical Customer Service Manager

▶ Mill Manager ChooWah Teoh (middle, light-coloured shirt) and rest of the mill crew at Muda.

JOINT STEPS TO GREAT RESULTS

1 Muda presents their case to UPM
2 Joint target setting
3 Data collection
4 Sample analysis
5 Suggestions
6 Joint trial runs
7 Sample analysis
8 Reporting

Roberto Mirande and the rest of the UPM Pulp Asia Pacific technical support team have learned to take full advantage of the company's Chinese R&D centre in Changshu.

"Having our own local research organisation is a powerful differentiator and an opportunity for our customers," Roberto says.

As Technical Customer Service Manager, he maintains close daily contact with client mills and serves as their trusted contact, handling everything from enhancing raw materials and processes to promoting sales and troubleshooting.

Mill visits are not only about collecting information and presenting recommendations, but also provide a crucial opportunity to listen to customer requirements and questions. The research function gives Roberto the confidence to find optimal solutions.

"The various technical proposals that I set out are always based on hard evidence. Our R&D centre gives me the facts and measurements that I need to make decisions."

Besides excelling in all basic functions, the R&D team has earned extra praise for its responsiveness.

"Customers have commented that our fibre experts are fast workers. I usually get the results and suggestions for the customer within one or two weeks of submitting a test sample," Roberto says.

WORKING WITH A PAPERMAKING PIONEER

Time was also an important factor when optimising manufacturing of a machine-glazed paper grade for Muda Paper Mills. Roberto was able to help this Malaysian board and paper manufacturer at a crucial stage.

"Muda is renowned for its focus on customer satisfaction through quality products and customer service. On this occasion they were seeking a competitive product, but wanted to reach their standards quicker."

Based in Penang, Muda Paper Mills manufactures top grade industrial brown paper, paperboard and paper-related products for the domestic and export market. The company's main product is coreboard made from recycled fibre.

As a pioneer in Malaysian paper making, Muda recently decided to expand into specialty papers with a new machine-glazed paper designed for such applications as food bags and wrappings.

"MG paper is a complex grade compared to tissue, for example. Mainly because of its thinness, this can be a challenging product to manufacture," Roberto explains.

His project at Muda sought to enhance the properties of this paper, and to optimise raw material and energy consumption on the production line.

"I was very impressed with their mill and with their determination to perfect this new product."

The first step in improving this sophisticated grade was to learn everything about its manufacturing process and attributes. Roberto needed an in-depth study, and this is where the UPM Asia R&D Centre came into the picture.

GREAT RESULTS

Strength is commonly one of the most important parameters in low grammage machine-glazed paper for food applications. Armed with precise process data and values from UPM test laboratories, Roberto was able to suggest pinpoint actions to improve the development of tensile strength during refining.

"We worked hard together with the staff at Muda to create a consistent quality, premium product."

Optimised refining also brought considerable savings in energy.

Mill Manager **Mr. ChooWah Teoh**, a visionary of Muda Paper Mills, was highly pleased with the outcome:

"Many thanks are due to UPM for their comprehensive study, technical support and solution for our bleached MG production. We have chosen the right partner."

FROM THE EDITOR

Dear Reader,

As daylight hours grow longer in the Northern Hemisphere, so too grow UPM's opportunities to create more value for you, our customers. One way of doing this is by engaging in deeper technical cooperation to leverage the benefits of pooling our products and knowledge. Read more in this issue of Pulp Direct.

There is one particular area where we are proud to claim leadership: in responsibility. We thoroughly believe that we set the industry benchmark in this area, which enables us to offer something truly unique to our customers. Currently, we have several joint responsibility projects ongoing with customers and other stakeholders, some focusing more on production and some on market position – and I am confident the results will soon be visible in the public eye in the near future.

For those of you who will be in Shanghai at the end of March, we will be sharing our views on responsible business practices at two separate conferences and will continue highlighting this topic also in the next issue of Pulp Direct.

Watch this space.

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A NEW STANDARD FOR SAFETY

70%

IMPROVEMENT IN LOST TIME ACCIDENT FREQUENCY IN THREE YEARS

Over the past three years all 20,000 UPM employees have engaged in a joint mission to improve the company's safety culture and performance. The results are impressive. The "Step Change in Safety 2012–2014" programme enabled UPM to cut work-related accidents by 70 per cent. This three-year initiative saw the annual number of accidents causing loss of working time fall from over 550 to only 155 accidents globally.

UPM set new safety standards governing their every unit around the world, defining the minimum requirements for safety performance and operations. The programme emphasised preventive measures and risk awareness. In practice, this means small changes in everyday behaviour that may be something as simple as paying attention to what you are doing, or removing safety hazards promptly when they come to light. High worker safety is also a key factor in manufacturing quality pulp and ensuring supply reliability.

Encouraged by the outcome, UPM has renewed the safety initiative for 2018 with an even more ambitious goal: fewer than three accidents causing loss of working time per million hours of work. UPM will achieve this goal by introducing a practice of regular refresher safety training. The company will also urge employees to report and share information on close calls and hazardous situations.

FROM FOREST TO WHEELS

The world's first wood-based renewable diesel biorefinery has come on stream in Lappeenranta, Eastern Finland, on the same site as the UPM Kaukas pulp, paper and sawmills.

UPM BioVerno diesel – a revolutionary new product developed in house at the same UPM location – is made from crude tall oil. This residue of pulp manufacturing is in turn largely sourced from three UPM pulp mills in Finland. No raw materials from the food chain are used for making fuel.

Thanks to its forest origins, this renewable fuel reduces greenhouse gas emissions by as much as 80 per cent compared to traditional diesel. UPM BioVerno has a high energy content and is compatible with all diesel engines. No engine modifications are necessary.

Now fully operational, the biorefinery will produce about 120 million litres of UPM BioVerno annually.

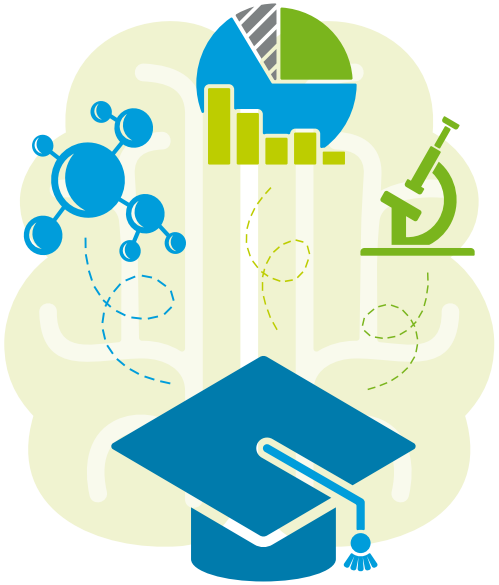
AN INVESTMENT IN LEARNING AND DEVELOPMENT

On its 25th anniversary in Uruguay, UPM continues to show its commitment to the country by signing an agreement with the Technological University of Uruguay (UTEC) to build a Regional Technological University (ITR) in Fray Bentos. The new university funded by UPM will specialise in mechatronics, renewable energy, transport and logistics.

The goal of the project is to promote technical skills and engineering expertise in rural Uruguay. The Fray Bentos ITR will be one of three Regional Technological Universities. It will cover the southwest region of Uruguay, serving a local community of over 4,000 students, who will now be able to complete university studies in their hometowns.

The Fray Bentos ITR will enhance education, entrepreneurship, employability, and development of the local forestry sector.

The new Regional Technological University will also help UPM to hire highly qualified local talent. The company's operations in Uruguay include the Fray Bentos pulp mill, the forestry and wood sourcing company UPM Forestal Oriental, and the UPM Foundation engaged in corporate social responsibility work. These operations employ a total of 550 people directly and 3,400 indirectly.



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