

TEKNOSAVO

WOODCHIP

Teknosavo's customer magazine

CASE MONDI SYKTYVKAR

OPTIMIZING SYSTEM CREATES BENEFITS IN SEVERAL STAGES

Mondi is one of the top leaders in the Russian pulp and paper industry. It is also the largest domestic paper producer. In 2015, Teknosavo installed WoodSmart™ optimization system to Syktyvkar mill with five measurement devices on two process lines. Optimized processes led to excellent results, increasing mill's productivity, profit and quality of the end-product.

VERSATILE AND SUSTAINABLE PRODUCTION

Mondi Syktyvkar mill is located in Syktyvkar in Komi Republic, Russian Federation. Syktyvkar mill has been operating since 1969 and provides office, offset and newsprint paper, containerboard, liquid packaging containerboard grades and market pulp to the paper industry.

Currently the mill is running three uncoated fine paper machines, one containerboard machine and a pulp dryer. Total production capacity is approximately 970 000 tons of paper and board a year. The mill comprises of a wood yard, a pulp mill with annual capacity of 550 000 tons, a power plant and a complete complex of wastewater treatment facilities. Mondi is following sustainable development and environmental protection, as 45% of the total energy production of the mill is bioenergy. Syktyvkar is proud of KOMICELL, a product which is a FSC® certified market pulp that is produced without the use of elemental chlorine (ECF).

MODERNIZATION ENSURED THE PRODUCTION GROWTH

In 2010, Mondi completed a phased expansion of its Syktyvkar factory. This massive modernisation project known as 'STEP' was implemented with a total investment of 545 M€. The main objective of the update project was to bring the factory's older equipment to the standard of best available technology. The programme is the largest refurbishment project in the history of the Russian pulp and paper industry. It includes overall expansion and upgrade of the mill's operations, facilities and equipment as well as reconstruction of two paper mills, refurbishment of fibre lines, building a limekiln and recovery boiler. The modernisation enabled to improve the quality and competitiveness of the product as well increases the mill's eco-efficiency.

OPTIMIZATION SYSTEM CREATES VALUE

Mondi Syktyvkar's fully integrated wood supply operation includes wood harvesting, road construction, wood

transportation, reforestation and forest management. The mill uses three different wood species, birch, aspen and softwood such as pine and spruce.

Few years after upgrade of hardwood and softwood fibre lines in 2015, Teknosavo installed the innovative WoodSmart™ optimizing system in two fibre lines. It was Teknosavo's first delivery to Russia. Instead of continuous

"Development and service contract with Teknosavo ensures that mill will continue its profitable production in the future as well"

manual debarking control, the WoodSmart™, equipped with five patented online measurement systems, is now maximizing the whole process capacity and quality in woodroom. The system calculates the best control variables for debarking and maintains the wood flow as stable as possible. Regardless of the wood species, logs are debarked precisely to the optimum level of residual bark, which creates significant savings in raw material. Annual amount of wood debarked in these two lines is approximately 3,3 million cubic meters.

FOCUS ON QUALITY DEVELOPMENT AND PRODUCTION OPTIMIZATION

According to CEO of Teknosavo, Hannu Hämäläinen, the WoodSmart™ significantly enhances the mill's capacity, and creates savings in raw material, chemical and energy use. Syktyvkar has already achieved great results with help of WoodSmart™ optimization system in two years.

"Optimization system has a positive side effect on the quality of the endproduct as well. Mondi's products have

won several quality certifications. In order to reach these achievements, the raw material must be clean."

"We are dedicated to develop the process further together with Syktyvkar. Our development and maintenance agreement ensures continuous production improvement in the mill. With remote monitoring we can follow how the debarking lines are performing on a daily basis and make adjustments when needed. Alongside intensive follow-up, Teknosavo makes regular service visits. Comprehensive and continuous service ensures that the processes are operating at optimal level", concludes Hannu Hämäläinen. Syktyvkar mill is taking the production to the next level.

ABOUT MONDI:

- Leading international packaging and paper group with operations across 30 countries with over 25,700 employees.
- Key operations and interests in central Europe, Russia and South Africa.

SYKTYVKAR KEY FACTS

- Founded in 1969
- One of the top leaders in Russian pulp and paper industry and also largest domestic paper producer.
- Located in Syktyvkar city in Komi, 1492 km by rail from the nearest port.
- Number of employees: approximately 5000
- Annual production capacity of 550 000 tons of pulp and 830 000 tons of paper.
- Product range: office paper, offset paper, newsprint, linerboard for corrugated cardboard, liquid packaging containerboard grades and market pulp.

IN THE CORE OF FLEXIBLE PROCESS AND PRODUCTION IMPROVEMENT

Teknosavo is globally known for its optimizing systems providing wood handling and pulp manufacturing companies’ versatile competitive edges. Today, the company provides an easy and comprehensive service solution to mills that wish to improve process productivity to the highest level.

Many mills are refined with first-class technology. Despite the fact, for long-term market success, initialization of new equipment and technologies might not be sufficient. More relevant is, how all equipment can be fully utilized and what types of services are available to them. Teknosavo enables flexible improvement for process productivity with value clarity. But what does it exactly mean?

INDIVIDUALLY MADE IMPROVEMENT PLAN

Teknosavo always provides a comprehensive prestudy to new clients to examine all improvement possibilities in

saving can make a difference when capacity is enhanced – savings do not only consist of raw material. For instance, a high automation rate allows less human resources in the mill. Also information of raw material increases possibilities in process enhancement. Valuable reports of wood quality are continuously available and consist of wood length, diameter and production according the week or a day, work shift and even time of the day.

“If raw material saving is 0,5% with an optimizing system, educated staff and loaders, it creates a great profit. When

CONTINUOUSLY SUSTAINED AND DEVELOPED PRODUCTION

When optimization system devices are installed to the customer’s mill, they are adjusted to perform in the operational environment. Customers receive continuous process support in daily or weekly basis depending on the need. Teknosavo analyzes and sets the optimal parameters. With remote access, it is possible to check the process status and foresee possible disruptions. We keep the process at the optimum level at all times.

REGULAR MAINTENANCE FOR ON-GOING PROCESSES

Nobody likes idle times in process. Neither do we. Therefore, a regular maintenance is important. Flexible and easy service solution signifies that Teknosavo’s customers do not have to take care of the system’s maintenance. Teknosavo has the most advanced practises on how to tune the measurement system to perform at its best. If something suddenly breaks, 24 hours spare parts delivery and mechanical support will take place.

“Due to comprehensive expertise, Teknosavo gives a value promise to each customer. It is a calculated, clear economical benefit gained with the system.”

production process. The prestudy contains an evaluation of profit and other benefits. Process optimization system usually denotes that mills’ annual raw material loss is cut by 50%. How much it means in profit, depends on the mill’s capacity and initial raw material loss level. Even marginal

a customer achieves for example 10% increase in process capacity, it is a cheap investment. Furthermore, investing in a process optimizing solution may postpone some other investment in future. Profit calculations are always versatile and integrated combinations.”

CUSTOMER DRIVEN DEVELOPMENT

When designing sensitive and complex measurement devices, including high-end technology and mechanics to variable processes, it is clear that development process takes time. During years of operation, all of Teknosavo’s devices are constantly developed to fit and perform best in the customers’ operational environment. This article unwraps the background of customer driven development in the company.

DESIGNING A COMPLEX AND ACCURATE DEVICE

Teknosavo has been developing advanced technology solutions for over 15 years. “Our objective is to not only provide the most advanced technology, but offer real solutions to enhance the customers’ process and product. Many issues may arise in the mills and we are here to advise in these matters”, says the development engineer Kari Virkki. He is responsible of product development in Teknosavo and works in a team consisting of mechanical, electrical and software engineers.

Virkki has a long history designing sensitive measuring equipment. He has been working at Teknosavo for 16 years. Development processes are constantly ongoing leading to better devices’ performance one after another.

“Technology is going forward fast – so are we. By utilizing the latest technology, cameras for instance. It denotes, that we can not get stuck with certain parts and mechanics, the device will be reformed at times. As the devices are assemblies of parts and functionalities and they work in

different environments, they are never bulk ware”, Virkki explains.

BETTER PERFORMANCE WITH THE HELP OF A CUSTOMER

When the device leaves Teknosavo’s premises, it has been completed and its technology and mechanics tested. It is fully working in Teknosavos’ circumstances but eventual testing and refining will be done in the customer’s facilities. “Every mill and production process is slightly different

Teknosavo's service explained

Teknosavo's services range from gate to digester. Our optimization service is based on continuous development which creates savings in raw material and energy.



Teknosavo in numbers

5/10

Of the world's biggest pulp producers use Teknosavo's systems.

540

Teknosavo's systems have been delivered worldwide.

25

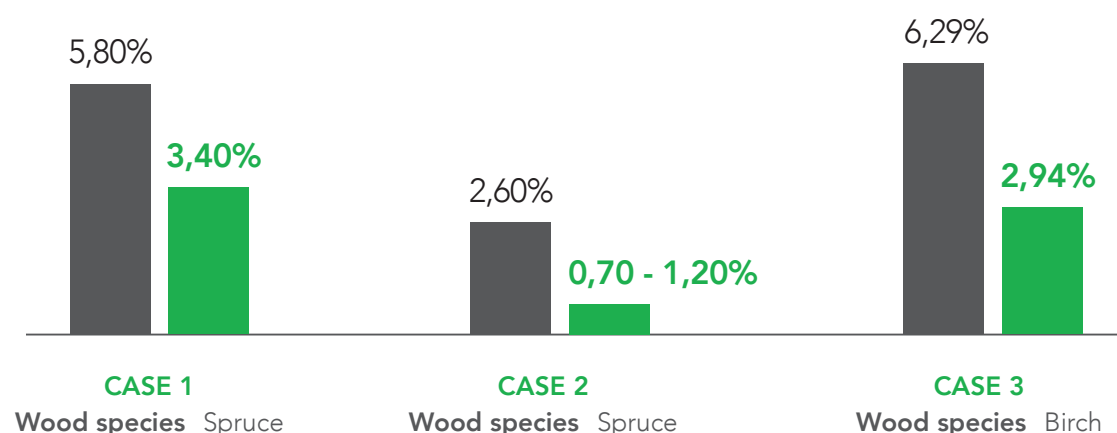
Number of countries Teknosavo's systems have been delivered to.

Optimization creates value

Our optimization services decrease our clients' raw material loss on an average annual level 1-4%.

For a single debarking line, this can mean up to 1 million euros in energy and raw material.

- Wood loss without optimized debarking
- Wood loss with optimized debarking



All Teknosavo equipment will be tested and refined after initialization with help of the customer. It is fair to say, that the products are developed to fit customer's needs.

depending on the premises, raw material and technology used. For example, when we were installing ChipSmart, the real-time chip quality measurement device for our customer, we noticed that long wood sticks in raw material are causing several process interceptions. This was not expected and we had to solve these challenges afterwards by mechanics. It is a normal adjusting procedure and customer has importance in development process. They help us to make even better devices", Virkki concludes.



The product development is always teamwork in Teknosavo.

ABOUT CHIPSMART:

Chipsmart is an optical measurement device that is designed for real-time measurement of chip quality. The result shows chip quality data such as chip surface brightness, the extent of bark and other impurities in the chip flow, changes of chip surface moisture, chip thickness, changes of chip size classification and material volume flow on the chip conveyor.

The measurement data can be used for debarking control monitoring the condition of the chipper blades or purchased woodchip to avoid unnecessary disruptions later in the chip handling process. The data can be connected to the WoodSmart® process optimization system, in the wood room automatic main control system, or shown in the control room on a separate display. The system consists a chip handling mechanics and optics unit, a display screen, and a PC unit housing, the analysis and maintenance software.

SKILLED EXPERTISE AT YOUR SERVICE

Advanced technical solutions, such as optical measurement devices are sensitive for external disturbances. To keep up their optimum functionality at all times, a regular maintenance is the key. Teknosavo provides reliably working measurement systems with comprehensive device maintenance and process development.

WE KEEP UP DEVICES OPTIMAL PERFORMANCE AT ALL TIMES

Company's dedicated and talented workforce ensures that the most comprehensive service is always available. Hanna Matilainen is responsible of operative management in Teknosavo. In daily basis she is working with a variety of tasks from client register management to devices initialization. According to Matilainen, all in the company have hands-on when it comes to serving the customer - dirty or malfunctioning device is showing false results leads fast quality decline and profit loss. Hanna has valuable knowledge in customers' process development and knows how problem situations can be foreseen and avoided.

SERVICE PROCESS IS ALWAYS CUSTOMIZED ACCORDING THE CUSTOMER'S NEEDS

"Only regularly maintained measurement devices assure optimal production. Unfortunately, sometimes this can be accidentally forgotten in the mills. In Teknosavo we definitely understand all issues that wood processing may involve. Therefore, we provide large scale maintenance services for our customers. Starting from the basic maintenance visits, we also offer phone and remote support, spare parts, repair services and status mapping. Because every mill varies from each other, all devices and service operations are customized according to customer's needs", says Matilainen.

"The basic maintenance means accurate checking process of equipment to ensure the optimal performance. The process itself is quite similar in every mill; first we check the condition of measurement device unit and clean critical components. These are followed by calibration and testing which confirms that service actions have succeeded.

All our devices involve a computer to run the programs. After cleaning and calibration, we continue checking on the electricity unit. It is important that the air condition

filters are clean enough to avoid overheating. At the same, we check that the computer works properly. Main focus is observing that nothing unexpected is shown which might jeopardize safety or devices functionality. If we notice any problems or needs to replace damaged parts, we can act immediately. In case the process line will be run immediately after maintenance, we will also check the image analysis. For example, when the wood quality changes radically, it will affect on detection. Usually there is no need to make changes but when needed, we will adjust the parameters. The basic maintenance involves the whole system."

HOW OFTEN BASIC MAINTENANCE SHOULD BE DONE?

"Recommendation is minimum once in a month, but for demanding conditions basic maintenance is advisable in every two weeks. Neglecting regular maintenance will quickly have an affect because for example a dirty bottom glass will lead to false results. The result might become distorted already in a four week period. Even with automated systems, there is a need for regular checks and ensure the sufficient amount of cleaning detergent."

WHAT IS THE ADVANTAGE THAT THE SERVICE WILL BE DONE BY TEKNOSAVO?

"We will always give a maintenance guide for our devices. Every mill can make the basic maintenance themselves or outsource the service. There are still a multitude of advantages why should Teknosavo take care of the maintenance. For example, we can check the customers' diagnostics, log files and analyse data. Previous disturbances in camera connection can be examined and we can solve problems already during the visit. With proper maintenance, all bigger issues can be avoided. This keeps the quality steady, shortens down times and saves resources."



Hanna Matilainen is dedicated to enhance customer's processes.

Our agreement customers can leave the maintenance and the support requests related to the applications every day of the week.

The basic maintenance means accurate checking process of equipment to ensure the optimal performance.

Teknosavo will always check the analysis and adjust parameters when needed.

Maintenance agreement is easy way to ensure full advantage of the system.

We monitor our contract customers' diagnostic and measurement data.

EXPOCORMA, CHILE

8TH - 10TH NOVEMBER 2017

EXPOCORMA is one of the most important events in the forestry industry in Latin America. The international trade fair gathers over 350 of the top companies in areas of forestry, pulp and paper. Teknosavo will be showcasing the optimization systems and on-line measurement systems for wood processing. **See you there!**