



Optimal brightness management in tissue paper production

The Nokia-based company, Oy Essity Finland Ab, which manufactures tissue paper products, uses cost-effective measurement sensors to monitor pulp brightness in real-time, allowing products delivered to consumers to be an optimal white colour.

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Digitalisation has resulted in an increasing need for various measurements. Nowadays known as Oy Essity Finland Ab, Nokia's paper factory is situated in Nokia and was established in 1865. The factory has optimised its production with additional measurements. Essity introduced optical brightness measurement technology developed by Pirkkala-based Satron Instruments Oy, which accurately measures the products' brightness level. Brightness is one of the most important quality variables in paper production.

Oy Essity Finland Ab produces products under the Lotus, Zewa and Tork brands, such as toilet paper, kitchen paper and hand towels. It is worth noting that the company developed the world's first disposable industrial towel 50 years ago, and the product continues to be a top export product.

The factory's production consists

of recycled fibre pulp paper, in other words, fibre produced from recycled paper and cellulose fibre obtained from forests via a cellulose plant. In addition to Finland, the factory's products are transported to other Nordic countries and Baltic countries.

Project Manager **Ossi Ikonen** has worked at the factory for more than 15 years, and during that time, he has seen how the factory has changed over the years.

"The number of employees has halved in that time. At the moment, 200 employees work here. Work processes have changed and become more effective as a result of digitalisation. Therefore, we have increased measurements and the monitoring of reliability."

Optimal brightness

It is important for a company producing paper products that the products delivered to consumers are of high quality. In this case, the brightness

of the product is a significant factor.

The company carried out a wide-scale study on which brightness-measuring product would suit their particular needs. Satron Instruments' VCB analyser, which operates at different wavelengths, was selected because there had already been a long-term collaboration with the neighbouring municipality's company. Thus, trust in their expertise already existed.

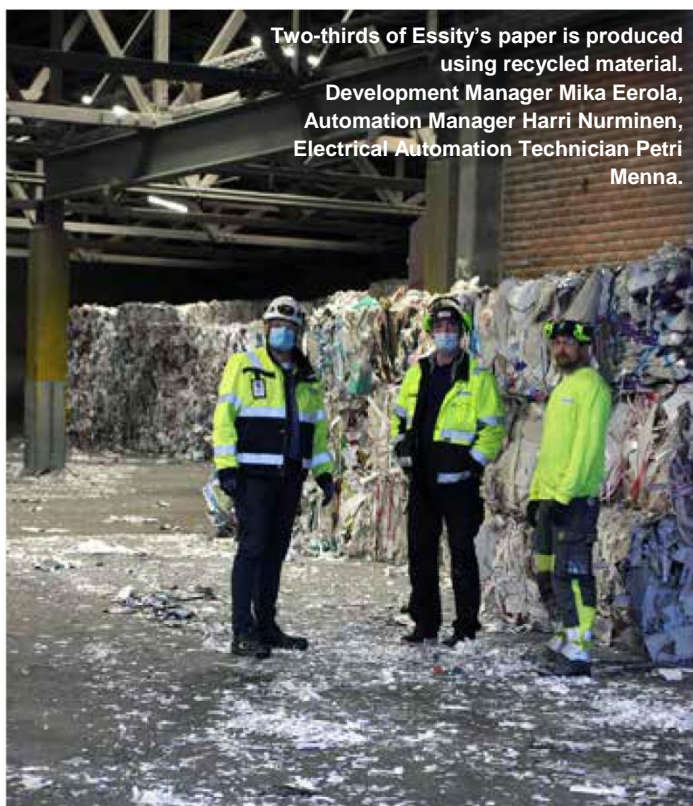
Ossi Ikonen explains that the company has been very satisfied with the product's reliability and usability.

"Satron's VCB was easy to install, it is compact, and it is easy to control. It provides diverse opportunities for measurements, and its usability is at an easy level."

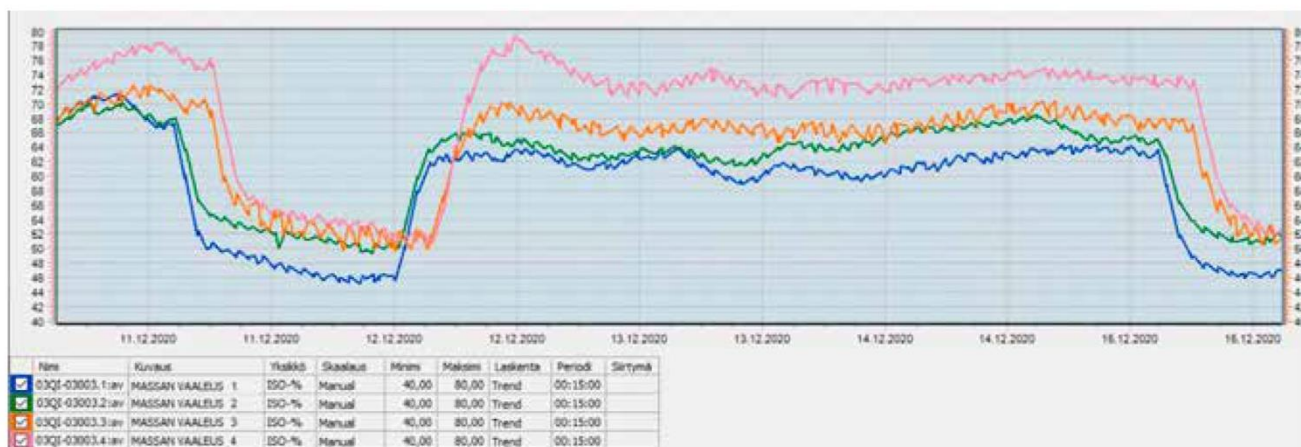
When tissue paper products are produced, the pure virgin cellulose is always white, but it is also expensive. Paper produced with recycled fibre is more affordable and more environmentally friendly, but it



The exceptional circumstances are also apparent in production in the form of masks. Coronavirus has slightly increased the sales of tissue paper products and cleaning towels.



Two-thirds of Essity's paper is produced using recycled material. Development Manager Mika Eerola, Automation Manager Harri Nurminen, Electrical Automation Technician Petri Menna.



Brightness trends of the deinking process per process stage.



Continuous P&P measurement devices.



requires print ink and coating substances to be removed at a deinking plant. Different processes are carried out at the plant to remove any excess materials, from plastics to staples. The use of bleaching chemicals is aimed to be optimised with the help of measurements.

“We wish to optimise bleaching, i.e. we do not use unnecessary chemicals because we aim for cost-effectiveness,” explains **Harri Nurminen**, who is responsible for paper production automation.

“We operate using the least possible amount of energy, and smallest carbon footprint and chemical load so that operations are financially worthwhile,” Ikonen continues.

Petri Menna works as an automation and instrument technician at the deinking plant. He considers the VCB meter to be user-friendly.

“I have received good technical support from Satron whenever necessary. The meter is easy to use. When a sample is collected, it is delivered to the laboratory where it is compared to the reading indicated by the sensor. The laboratory results are utilised in the calibration of the measurement device.”

Unique technology

Satron Instruments Oy's Chief Technical Officer, **Atte Nurminen**, says that Satron has had optical measurement devices for more than 10

years. The factory's history roots back to the government's aircraft factory almost one hundred years ago.

The products developed and manufactured by the company are currently used in various industry sectors in up to 60 countries. The company has been under Finnish ownership since 2003. Satron's turnover has had an annual growth rate of approximately 15%, and it is now approaching 7 million euros.

In addition to consistency measurement, the optical measurement technology developed by Satron enables the measurement of cellulose analysis variables.

This technology can be used on a continuous basis to measure cellulose's filler content, brightness, freeness, kappa and fibre length.

Satron's VCB brightness measurement device was developed five years ago. Development Manager **Mika Eerola** describes the company's strength to be the easy-to-use, cost-effective products, which produce continuous measurements. It is a pioneering feature compared to similar measurement devices.

It is important for Satron to form long-term customer relations that are based on trust. Essity praises Satron for its customer-orientedness; service has been provided quickly when there has been a need.

Satron Instruments recently opened a new maintenance office in Lappeenranta, and growth is in the air. Essity is also expanding measurements in the paper factory because the digital era requires process measurements to ensure that prime quality is retained.