

# SUZANO OPTIMIZES THE EVAPORATION PROCESS

## IN PARTNERSHIP WITH ANDRITZ

Suzano's pulp mill in São Paulo has generated significant savings in the plant's evaporation process by using the Metris UX technology from ANDRITZ for the digital transformation of its processes.

In total, Suzano has 11 industrial plants throughout Brazil, with each one bearing the name of the city where it is installed. The Suzano plant, located in the city of Suzano (SP), has played a globally significant role in the history of pulp production as it was at this plant that pulp production from eucalyptus fiber began. This change revolutionized the industry, which previously depended on pine for pulp production.

But this production site did not stop innovating there. In 2015 it was the first to sell Eucalfluff™, an innovative and sustainable solution that is applied in absorbent hygiene products, bringing more comfort and well-being to the consumer thanks to the unique characteristics of eucalyptus fluff pulp.

With a history of innovation references in the pulp and paper market from the very beginning, the Suzano plant is once again heading towards the future, living Industry 4.0 and IIoT by optimizing its processes

using Metris – ANDRITZ Digital Solutions to impact the quality of the final product.

Claudio Nunes Aguiar, Pulp Executive Manager, Suzano, explains how this has happened at the Suzano mill, "In recent times, due to the greater demands from our internal customers, we have implemented projects with the objective of reducing the variability of pulp quality. Metris has helped us to build correlations between the manufacturing process parameters and the final pulp quality in order to optimize the runability conditions of the paper machines."

### MAJOR SAVINGS

One of the high-impact processes for guaranteeing production quality is the evaporation of black liquor in pulp production. Suzano and ANDRITZ have developed a successful system for standardizing the control of steam addition in the first evaporation effects, obtaining greater plant stability and reducing the

standard deviation of burning solids in recovery boilers by around 30%, generating savings of 55,000 USD/month.

This partnership brought the technical knowledge of the engineers, the participation of the management, and the practical knowledge of the Suzano operators together with ANDRITZ experts, making it possible to define a control logic that, after the planning and testing stages, managed to reduce both the standard deviation and increase the average solids in the boiler.

This perfect teamwork between ANDRITZ and Suzano, combined with Metris UX technology, led to the elaboration of the main logic control algorithms. The main Metris UX applications utilized for this project were Data Analytics (for graphical analysis and controls monitoring) and Machine Learning (which uses big data to make the studies through clusters, to find opportunities based on the evaporation process history).



André Ferreira, Specialist Engineer, and Marcos Donadio, Recovery and Utilities Manager, from Suzano



Eduardo Correia and Aline Martins, both OPP Local Analysts from ANDRITZ

The main task of the control logic defined was to observe the electric current for the pumps that transport the concentrated liquor to the recovery boiler. The output data were also used to correct the reference current, with the temperatures of the steam generated in each evaporation vessel as safety information and preventing any interlock in the process.

Throughout the project, the Metris Data Analytic application was also used to evaluate, monitor, and validate the responses by the controls on a daily basis, so from these results doing the proper modifications.

"In addition, the Metris Machine Learning application was very important to validate the correlation of the transfer pump currents used in the new logic with the boiler burning and evaporation solids, showing that this correlation is suitable for control purposes," says Aline Martins, ANDRITZ.

Marcos Donadio, Recovery and Utilities Manager at the Suzano plant, says that an important differentiation for this result was "the follow-up and involvement of the production team supporting the local ANDRITZ team with important feedback to improve the control algorithm during the implementation and testing phase."

This intense collaboration had a high impact on best use of the technology, according to Eduardo Correia, ANDRITZ,

"The team of engineers, the management, and the pulp production operations team worked very closely with the ANDRITZ experts. We have a great relationship with everyone at the mill and there is a real spirit of cooperation. We are always looking for ways to improve the processes together."

For André Ferreira, Specialist Engineer, Suzano, the partnership in joint development of the solution was the decisive factor, "We held some meetings with the local ANDRITZ staff and explored a variety of control scenarios for a solution to the problem of high standard deviation of the burning solids in the recovery boilers. After defining the control methodology, we planned the implementation and testing stages."

### MORE IIOT INNOVATIONS FOR THE FUTURE

This partnership work, paired with the Metris technology, led to an experience that did justice to the entire history of innovation at the Suzano plant. Donadio comments on this experience, "It was very satisfactory because, at each weekly follow-up meeting, we could see the improvements happening, through feedback conversations with the operators and the local ANDRITZ team."

With many plans for the future of this plant, use of IIoT technologies does not stop here. "We've started a project to optimize the flow of steam in recovery boilers, and we're

also making use of the Metris technology to create a blower information panel that will help us in assessing problems as well as supporting operation and maintenance in agile decision-making," says Donadio.

Ahead of this new industrial revolution, Aguiar evaluates how Metris technology has helped the plant to have one more competitive difference in its market. "The Metris technology offers several tools and alternatives for data analysis and simulation that make it easier to find better results. Besides the technology, the concept of ANDRITZ teams working together with customers generates a unification of efforts and synergy with tremendous potential for generating new projects and ideas, such as performance improvements, cost reduction, reduction of process variability, and quality gains. As soon as one project is finished, another automatically begins, generating a virtual flow of continuous improvements."

In addition to the evaporation project, there are around 40 more projects utilizing the Metris technology, focusing on optimizing the processes at the Suzano plant, work that will continue to make history thanks to the partnership between ANDRITZ and the Suzano professionals, which is driven by results.

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