

intelligent control systems

Suzano increases availability in Drying with...

The Suzano Unit in Imperatriz, Brazil was able to reduce the unproductive time in Pulp Drying by applying Artificial Intelligence (AI) and advanced controls from ANDRITZ in the tail threading system on its pulp drying machines.

The tail threading system is a very important process during market pulp drying production resumptions. At this stage, stabilizing the dry sheet weight means faster production acceptance on the cutter, reducing process adjustment times for sheet quality parameters. With this challenge in mind, Suzano and ANDRITZ combined their expertise in studies and development of advanced controls with the exclusive technology of Metris UX, leading the Imperatriz Unit mill to improve the production process with enhanced availability of its drying machines.

Metris UX is ANDRITZ's IoT platform that hosts several tools for management and optimization of processes and equipment. The platform is the

result of years of knowledge and development of modern technologies that have brought excellent results to ANDRITZ's customers.

At Suzano, the implementation of advanced controls is related to what the company calls "innovability", the union of innovation and sustainability. Edson Hélio, Executive Production Manager at Suzano Unit Imperatriz, says, "Improvement management is applied in conducting initiatives that will help us achieve our goals. Strategic and priority projects are coordinated and reported within a regular project management routine. Within this routine are the projects developed with the ANDRITZ team."



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Edson Hélio
Executive Production Manager,
Suzano Unit Imperatriz

ADVANCED PROCESS AND GRAMMAGE CONTROL IN THE TAIL THREADING

One of the main challenges facing the pulp industry today is to combine cost with guaranteed profitability and product quality.

In the case of the Imperatriz Unit, the project in partnership with ANDRITZ started looking at the downtime of the pulp dryer lines, in which two machines operate. "There was a loss in machine availability due to the time needed to reach the finished product's moisture specification and a low assertiveness in the tail threading due to fluctuations in the sheet grammage," explains Lucas do Nascimento, Production Consultant at Suzano Imperatriz Unit.

PROJECT DEVELOPMENT FOR THE ADVANCED PROCESS CONTROL OF THE TAIL THREADING

The mass balance control to stabilize the grammage was one of the important points for project development, as it was previously done manually. "Thus, under the best process conditions, the average time to carry out the tail threading and have the production acceptance was relatively high and depending on the process conditions could be longer," comments Jhonatas Santos and Job Camargo, OPP Analysts at ANDRITZ.

"We concluded that the time for process adjustments and production acceptance on the machines could be reduced with the application of artificial intelligence added to advanced process controls. In this way, the technology would be used to have the fastest production acceptance on the cutter, reducing process adjustment times for sheet quality parameters," explains Heller Braga, Specialist in Automation and Process Optimization at ANDRITZ.

After a variety of tests, the team analyzed four downtimes that were used as a reference. With this, it was observed that the advanced control managed to reduce the passage time by approximately 40%. According to Hélio, the results created a new milestone for the Imperatriz Unit. "We increased the availability of the machines, which allowed us to surpass previous monthly production records at the mill," he says.

ADVANCED CONTROLS ARE A KEY PART OF THE DIGITAL TRANSFORMATION PROCESS

Advanced process controls are the last instance before formalizing an autonomous industrial mill. They do not replace basic process controls but provide value to what exists. They use information about changing process conditions or constraint influences to make real-time improvements. The objective is to effectively transfer the operators' activities to the automation system.



One of the most important additions to increase machine availability and stabilize grammage deviation in the Imperatriz Unit was the use of virtual sensors. These sensors are utilized by the Digital Twin application that exists in Metris. The Digital Twin uses machine learning to understand the behavior of variables and creates models that will be used to predict new soft sensor values.

The realization of this project, therefore, contributed to turning another page in the digital transformation of Suzano Imperatriz. However, Hélio says that this movement is not just about embedded technologies, it also involves a new way of thinking. "We believe that digital transformation empowers people to use technology in an uncomplicated, intelligent, and agile way," concludes Hélio.

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