

# SMART BLEACHING = MAJOR CHEMICAL SAVINGS AT PULP MILLS

Suzano Imperatriz, located in Maranhão, northern Brazil, is one of the new breed of giant pulp mills. The mill has recently undergone a number of improvements including the implementation of a smart bleaching system from ANDRITZ that is making a real difference when it comes to chemical consumption.

The management at Suzano Imperatriz was already well aware of ANDRITZ's capabilities in its supply of the very best equipment for pulp mills. So, when major improvements were required at the mill in 2018, ANDRITZ was the first port of call for improvements to its brownstock washing and Suzano invested in a DD-Washer. Prior to the installation of the DD-Washer, Imperatriz had invested in other modifications and optimization at the mill in an effort to reduce the chemical consumption in the bleaching process. After the adjustments and

the installation of the DD-Washer by ANDRITZ, there was a notable improvement in efficiency at the mill.

Jose Wilhelms Ventura, Industrial Executive Manager, Suzano Imperatriz says, "During the investments and improvements we made at the mill in 2018, we were looking to fine-tune our operations further and we installed a DD-Washer. This was the perfect opportunity to have a good look at the advanced Metris IIoT technology of ANDRITZ and the possibilities to reduce our chemical consumption further.

"Historically we have had high chemical consumption at the mill, but after the shut-down in 2018 and with the installation of the DD-Washer and other modifications in the digester, we managed to lower the levels. But we still believed we could go further. We were aware of Sindus ANDRITZ's growing success in the area of smart solutions for optimizing all areas of pulp mills' performance and we called them in to see what technology could be applied to the bleaching area."

In early 2019, Metris UX experts began working with Suzano on a pilot to make the whole



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**JOSE WILHELMS VENTURA**  
Industrial Executive Manager,  
Suzano Imperatriz



bleaching area of the Imperatriz mill autonomous, bringing in dynamic, standardized decision-making and quality control with an emphasis on the lowest possible chemical costs. Under the umbrella of Metris OPP, Metris UX is a platform in which local specialists work closely with mill customers to ensure all their requirements are taken into account.

Eduardo Avila Alves, Metris OPP Process Improvement Engineer at ANDRITZ says, "Each mill is a completely individual entity; they all run in different ways, and have their own peculiarities. The big challenge for us is to make a solution that is fit for the purpose and achieves continuous, successful results. To do this, we construct a pilot, live at the mill, bringing in the operational team so that all ideas and requirements are taken into account."

**COMPLETE SMART CONTROL**

The aim of smart bleaching is to have a process that is controlled totally automatically with an emphasis on less human interference and on eliminating time spent on decision-making. There are many associated benefits with a successful automated system, including major savings in chemical usage, greater adherence to production planning, and improvement of final product quality with less variation.

The smart bleaching project scope at the mill included a system to allow complete

control of brightness and pH of the whole bleaching plant comprised of Dhot, EP, D1, and P stages in order to guarantee final brightness after the drying machine. The implementation of smart bleaching also takes into account process disturbances, ensuring that automatic adaption takes place to guarantee performance and quality. The advantages of the process mean that only the correct, specific amounts of chemicals are used, and overcharging is dramatically reduced.

"After the creation of the successful pilot at the Suzano Imperatriz mill in early 2019, we implemented a complete smart control of the bleaching area step-by-step over the space of six months," continues

Alves. "It is very important for a project like this that people are made part of it, and accept and trust the tool, as not only does it get results, but also makes running the bleaching area less challenging for the operators. Close collaboration is of the utmost importance."

**PROVEN KNOWLEDGE**

The smart bleaching project at Imperatriz is now fully implemented and has made the whole bleaching area autonomous, including standardized decision-making in process and quality control. Added to this, the smart control is responsible for delivering final product quality whilst adhering to the production plan at the lowest cost and minimum waste.



ANDRITZ and Suzano team at a smart bleaching workshop

**EDUARDO AVILA ALVES**  
Metris OPP Process Improvement Engineer, ANDRITZ

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A DD-Washer was installed in the brownstock washing between existing wash presses.

The bleaching plant undergoes a more optimized and automated process and the DCS operator starts to have a more technical role in monitoring controls and fine adjustments aiming at the best characteristics and final quality requirements of the pulp.

Carlos Verciano Costa Santos, Recovery and Utilities Executive Manager, Suzano, says, "ANDRITZ has really proven its knowledge with the smart bleaching project. Before the implementation, our peroxide consumption at the mill was very high and we needed to get more control of stabilizing the brightness. Now the process is fully autonomous, and all four stages of the process are automatically adjusted to

keep the brightness stable from beginning to end. Combined, all the investments we have made, including the DD-Washer, have resulted in a process that is much more optimized and automated, and we have already seen a reduction of 25% in chemical consumption at the bleaching plant.

"Collaboration with ANDRITZ, and the way its experts have shared knowledge of the system, has been key to the successes at Imperatriz. They took all our ideas and experiences into account and sequentially we have arrived at a solution that we are looking to roll out at all our mills."

Alex Andrade Ribeiro, Metris OPP Local Specialist at ANDRITZ says, "Our greatest

**"Our greatest advantage is our teamwork."**



**ALEX ANDRADE RIBEIRO**  
Metris OPP Local Specialist, ANDRITZ

advantage is our teamwork. The success of the company comes down to everyone playing their part, thus making us strong in all areas. This helps us customize solutions quickly and efficiently for our customers. Eduardo Alves, as a local analyst responsible for the project, can rely on our team for support and I'm glad to be a part of this project's success."

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**CARLOS VERCIANO COSTA SANTOS**  
Recovery and Utilities Executive Manager, Suzano