

Brazilian pulp giant Suzano started up its Ribas do Rio Pardo pulp mill in eastern Brazil in July 2024. Utilizing the very latest in ANDRITZ technology, the mill has set a benchmark in reaching the nominal pulp capacity of 1 million tons of production in less than six months after start-up.

The largest single-line eucalyptus pulp mill in the world, Ribas do Rio Pardo pulp mill, is set to produce 2.55 million tons per year of top-quality pulp for the global market and at the same time generating 180 MW of surplus energy for Brazil's national grid.

At the peak of the construction and erection phase of the new mill, around 10,000 personnel were working at the site, with over 300 ANDRITZ skilled employees.

SCOPE OF SUPPLY – A FOCUS ON SUSTAINABILITY

ANDRITZ supplied the complete pulp mill, including wood processing plant, the world's largest single-line fiberline, pulp drying system, evaporation plant, recovery boiler, power boiler, white liquor plant, gasification plant, and a SulfoLoop™ sulfuric acid plant. The new mill also has the latest in ANDRITZ automation and digitalization that enables unprecedented levels of autonomy and sets the benchmark for the global industry. In addition, ANDRITZ supplied more than 500 pumps for all process islands. These pumps were designed and sized to consume the lowest possible power due to their high efficiency while handling a variety of abrasive and corrosive media.

RAMMP UP IN STYLE

With a major focus on sustainability, the mill runs entirely on renewable energy, producing a surplus of 180 MW, which is supplied to the national grid and equivalent to the use of two million inhabitants with around 1.5 TWh of electricity. The SulfoLoop™ sulfuric acid plant enables the mill to be completely self-sufficient in sulfuric acid. The plant has a capacity to produce 153 tons of commercial grade sulfuric acid per day from the mill's concentrated odorous gases and elemental sulfur.

As part of the scope of supply, ANDRITZ will continue supporting the mill by providing maintenance services. This support started a couple of months before the start-up in July 2024. The five-year contract Suzano has signed with ANDRITZ covers several maintenance modules for all process islands and equipment at the new mill. The modules comprise lubrication as well as predictive, inspection maintenance services, including vibration analysis in mechanical equipment and electrical thermographic inspections.

COMMISSIONING, START-UP AND RAMP-UP

All equipment was in place at the mill in early 2024 and despite some unavoidable delays in construction the commissioning and start-up went according to schedule. Roberto Furtado, Commissioning and Start-up Corporate Manager from ANDRITZ says, "Once all the process islands and equipment were in place, instrument checks were completed, and a water run across all systems and sub-systems was carried out. The commissioning was very successful and went according to plan allowing for a smooth start-up."

Joel Starepravo, Project Director, ANDRITZ says, "The start-up officially took place on Sunday, July 24th at 9 pm when the first chips were fed to the digester. Despite some initial teething problems - very normal in projects of this scale - the mill was stable from the start."



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→ "One of the highlights of this particular start-up was the quality of the first pulp produced from the mill and we reached the agreed quality very fast."

The top rate quality of the pulp so early after the start-up was instrumental in the further ramping of the mill to nominal capacity. "The ramp-up started in a synchronized and organized way," continues Furtado. "And as soon as we saw that each process area was stable enough, we were able to begin ramping up the speed."

The mill reached its designed daily production capacity within only 87 days of the beginning of operations in July 2024 with an excellent 95.3% of final pulp already meeting market-ready quality standards.

"In terms of reaching nominal capacity so fast this project was a benchmark for ANDRITZ and the industry," says Starepravo. "In less than 90 days we went from first chips fed into the digester to full mill capacity, virtually unheard of in this industry. Furthermore, in just five months we completed the learning curve at the mill, four months earlier than we agreed with the customer."

Roberto Furtado
Commissioning and Start-up
Corporate Manager, ANDRITZ

ONGOING PERFORMANCE AND ENVIRONMENTAL EXCELLENCE

The mill is now running at a capacity of 8,004 tons a day delivering top quality pulp at the same time as generating a significant amount of renewable energy for the Brazilian grid.

"From the woodyard to the dryers the mill is running better than expected and due to the fact that this mill includes all ANDRITZ equipment, a smoother start-up and quick ramp-up was enabled. Working closely with the customer made it easier to get good results and the close cooperation really made a difference in this case."

Starepravo comments, "Despite some delays in the construction phase of the project, we met the customer's requirements when it came to producing sellable, high-quality pulp in the agreed original time frame.

"With the high capacity, excellent quality pulp, and low chemical consumption this mill has provided an excellent solution to Suzano's requirements."

On the environmental front, the mill is now running completely free of fossil fuels, with biomass from eucalyptus feeding the gasifiers, recovery boiler, and power boiler. Furthermore, the SulfoLoop plant is running at full capacity and provides all the mill's needs when it comes to sulfuric acid used in the pulping process.



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Joel Starepravo
Project Director, ANDRITZ

"Ribas do Rio Pardo really is a showcase mill for the industry. Together with Suzano we have brought a new and record-breaking mill to life, fueled by 100% planted eucalyptus trees. With the SulfoLoop plant the mill is recycling sulfur from waste steams to make sulfuric acid, closing environmental loops and creating circularity.

"We at ANDRITZ are very proud to be creating growth that really matters in the global pulp industry," concludes Starepravo.

AUTOMATION AND DIGITALIZATION – A BENCHMARK IN THE PULP INDUSTRY

The Ribas do Rio Pardo mill has one of the most comprehensive automation and digitalization scopes supplied by ANDRITZ with a high level of autonomy. Built entirely with ANDRITZ equipment, the mill integrates a full suite of automation and digitalization solutions – starting with a robust foundation of automation, electrification, and instrumentation. Going beyond the basics, it incorporates a bundle of ANDRITZ Smart Series Intelligent Instruments, which enable a truly elevated level of digitalization and data-driven decision-making through its connection to digitalization solutions from Metris.

ANDRITZ Smart Series Intelligent Instruments provide data from the process to ANDRITZ Digital Solutions, enabling improvements in the production process. An excellent example is the Smart Woodyard Process Optimization, which utilizes advanced measurement solutions for analysis of loading deck discharge, infeed volume, and debarking degree to determine optimal debarking and chipping operations, thereby optimizing quality, minimizing wood losses, and generating savings.

Another example of a high-value combination of solutions is the Smart Smelt Spout Robot, which frees the operators from the hazardous activity of keeping the spouts in good operation condition while the advanced visual analysis provides valuable information of smelt reduction rate and char bed dimensions – information that can be used for recovery boiler operation optimization by Metris ACE (Advanced Control Expert) and by the Digital Twins.

There are many more solutions – a total of 42 ANDRITZ Smart solutions in the Ribas do Rio Pardo mill to provide advanced process measurements, analyzers, analytics, machine vision solutions, condition monitoring systems, robotics, and mechatronics solutions, thereby enabling a higher level of autonomy.

Furthermore, ANDRITZ has implemented a comprehensive suite of digital solutions at the mill. Starting with Metris Operator Training Simulation (OTS), designed to train Suzano's team across 16 key process areas from ANDRITZ EPCM scope as well as non-ANDRITZ. It familiarized operators with control screens and the plant's automation philosophy, covering start-up, shutdown, and abnormal situations.

For the highest levels of optimization and efficiency, the full library of the ANDRITZ advanced process controls is in application and there are more digital solutions to come, such as mill-wide optimization, where we are stabilizing and optimizing the processes across all process islands, including the overall production control (mill balance) and first of its kind mill-wide cost optimization.

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