



PRESS RELEASE

Klabin successfully starts up the world's first commercial-grade, concentrated sulfuric acid plant in a pulp mill



- ANDRITZ sustainable technologies enable production of commercial-grade sulfuric acid from the mill's odorous gases, making the mill self-sufficient in sulfuric acid
- The plant is part of the ANDRITZ CircleToZero product portfolio that focuses on eliminating unused side streams, creating new added-value products and laying the foundation for zero emissions and zero waste production

GRAZ, OCTOBER 6, 2022. Klabin has successfully started up a sulfuric acid plant supplied by ANDRITZ at its Ortigueira/PR plant in Brazil. The plant is a world first and has the capacity to produce 150 tons of commercial-grade sulfuric acid per day from concentrated odorous gases and elemental sulfur. It serves the pulp lines at Klabin's Puma Unit and makes the site completely self-sufficient in sulfuric acid by recycling sulfur from the waste streams.

The sulfuric acid plant helps Klabin to control the sodium and sulfur (Na/S) balance and also the sulfidity of the mill. In addition, less sulfate will now be discharged due to the optimized Na/S balance, hence improving the efficiency of input use at the Ortigueira plant. Furthermore, there is no need in future to transport hazardous inputs such as sulfuric acid to the plant and the unit also optimizes resources overall, with a large reduction in transportation volume. As the sulfuric acid plant meets stringent air emission limits, the process significantly improves the overall footprint of the Ortigueira mill.

Klabin's Director of Projects and Engineering, João Antônio Braga, says *"Operation of the sulfuric acid plant at the Puma Unit, Ortigueira, represents a significant advance in the circularity of the installation. The new plant allows the Puma Unit to be self-sufficient in sulfuric acid, with the additional option of selling any excess production to the market. This innovative technology, a first in this industry worldwide, supports our efforts to optimize productivity and is an important milestone in our ambition to achieve our sustainability goals."*





Klabin's Manager of Projects, Recovery and Utilities, Walter de Oliveira, adds *"The quality parameters are being met and the sulfuric acid is being used successfully in several operations at the plant, replacing the commercial acid we were using before. Besides optimizing resources, installation of the plant brings greater independence because we do not have to rely on an external supplier for our sulfuric acid needs."*

The ANDRITZ scope of supply included technologies on EPCC basis for handling elemental sulfur, combustion of sulfur and concentrated non-condensable gases (CNCG) to form sulfur dioxide (SO₂), and conversion of sulfur dioxide into concentrated sulfuric acid, as well as a flue gas treatment system.

Sulfuric acid plants are part of the company's CircleToZero initiative, which includes technologies that aim to reduce and/or eliminate waste from pulp mills. This global initiative for pulp and paper customers brings the continuous development and improvement of existing ANDRITZ technology solutions together with an ambitious, future innovation goal: to eliminate unused side streams, create new value-added products, and establish a foundation for zero emissions and zero waste production.

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The sulfuric acid plant at Klabin's Ortigueira facility is the first worldwide to produce commercial-grade, concentrated sulfuric acid at a pulp mill.

RESS RELEASE AND PHOTO AVAILABLE FOR DOWNLOAD

Press release and photo are available for download at andritz.com/news. The photo may be published free of charge if the source is stated: "Photo: Klabin".

FOR FURTHER INFORMATION, PLEASE CONTACT

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ANDRITZ GROUP

International technology group ANDRITZ offers a broad portfolio of innovative plants, equipment, systems, services and digital solutions for a wide range of industries and end markets. ANDRITZ is a global market leader in all four of its business areas – Pulp & Paper, Metals, Hydro, and Separation. Technological leadership, global presence and sustainability are the cornerstones of the group's strategy, which is focused on long-term profitable growth. The publicly listed group has around 27,400 employees and over 280 locations in more than 40 countries.

ANDRITZ PULP & PAPER

ANDRITZ Pulp & Paper provides sustainable technology, automation, and service solutions for the production of all types of pulp, paper, board and tissue. The technologies and services focus on maximum utilization of raw materials, increased production efficiency, lower overall operating costs as well as innovative decarbonization strategies and autonomous plant operation. Boilers for power generation, flue gas cleaning systems, various nonwoven technologies, panelboard (MDF) production systems, as well as recycling and shredding solutions for numerous waste materials also form a part of this business area. State-of-the-art IIoT technologies as part of Metris digitalization solutions complete the comprehensive product offering.