GOING FROM STRENGTH TO STRENGTH

CMPC Biopackaging – Boxboard and ANDRITZ have been collaborating successfully on ramping up mechanical pulp production for a number of years. The mill has gone from strength to strength, increasing capacity, to supply the demanding global market for high-quality, lightweight, folding boxboard.

Within sight of the Andes mountains, the CMPC Biopackaging – Boxboard mill operates in the Maule region of Chile, just a short drive south from the capital, Santiago. The mill is part of the Chilean pulp and paper giant Empresas CMPC, an integrated forestry group with headquarters in Santiago. The group also has subsidiaries in Brazil, Argentina, Uruguay, Peru, Columbia, and Mexico.

The CMPC Biopackaging – Boxboard mill has always had something of an ambitious streak when it comes to the production of high-quality board. Originally, the foundations for the mill were laid in 1995 with the inauguration taking place in 1998. After a succession of rebuilds and expansions over the years, the mill now produces some 420,000 tonnes of high-quality folding boxboard in weights from 200 to 390 g/m², in sheets and rolls, all from 100% local Radiata pine.

Juan Constabel, Operation Manager, CMPC Biopackaging – Boxboard, says, "The mill here has been perfectly suited to us in terms of both expansion and location, and also with regard to access to water and raw materials. Added to this, we are close to the local market, as well as ports for exporting our board.

"When we first started up here in 1998, we began serving the local folding boxboard market in Chile, which had a demand of around 66,000 tonnes a year. We had a machine capacity of 40,000 tonnes at the time, but we saw that this was a growing market, and we installed a machine with a capacity of 130,000 tonnes – double the country's market demand. Since, the installation of that board machine we have rebuilt and upgraded it a lot of times to increase capacity. Now we are producing an incredible 420,000 tonnes, but we believe we can go up to as much as 450,000 tonnes, from the same machine. We have created an incredible toy to increase capacity and quality."

JUAN CONSTABEL
Operation Manager,
CMPC Biopackaging – Boxboard

"The mill here has been perfectly suited to us in terms of both expansion and location, and also with regard to access to water and raw materials."

Left to right: Micheal Jaeger, Director Order Execution, ANDRITZ; Edin Paredes, Project Manager, CMPC Biopackaging – Boxboard; Marcelo Ribeiro, Senior Technical and Commercial Manager, ANDRITZ; Juan Constabel, Mill Manager, CMPC Biopackaging – Boxboard

HAND IN HAND ON QUANTITY AND QUALITY

Along with the intensive board machine upgrades, the integrated pulp production also had to keep pace with the expansion, as well as include all the latest technology for producing the best quality end products.

ANDRITZ has been working hand in hand with CMPC Biopackaging – Boxboard at Maule for a number of years. Beginning with an RMP process with primary and secondary refining in 1998, the first TMP line ANDRITZ delivered to the mill was in 2002 and was based on the ANDRITZ RTS technology. The system had a capacity of 24 t/h of bleached thermo-mechanical pulp. The delivery also included a high-consistency peroxide bleach plant, and a wet-lap system, including a twin wire press, cutter layboy, and baling line.

"At this mill we only like to have the top technology available, and we know that ANDRITZ is the leader when it comes to mechanical pulping and bleaching," says Constabel. "That's why we have always worked closely together for all our mechanical pulping demands."

During the mill's progressive capacity expansion, CMPC chose ANDRITZ again to carry out several line upgrades. In 2007, capacity of the RTS TMP line was upgraded from 24 to 36 t/h and the capacity of the bleach plant from 24 to 27 t/h.

In 2012, the mill embarked upon a major production upgrade to 44 t/h and bleached pulp at a rate of 30 t/h. The target of this project, the "BTMP 44", included increased capacity, but also an important target was the reduction of energy. After the rebuild, the mill had two almost identical parallel TMP lines that produced 22 t/h each. Also added during this upgrade were two new ANDRITZ LC refiners.

"The main challenge was the very short shutdown time, just 21 days, so we made sure we carried out as much work as we possibly could beforehand."

MARCELO RIBEIRO
Senior Technical and Commercial Manager, ANDRITZ Paper, Fiber and Recycling Division

MULTIPLE CHALLENGES

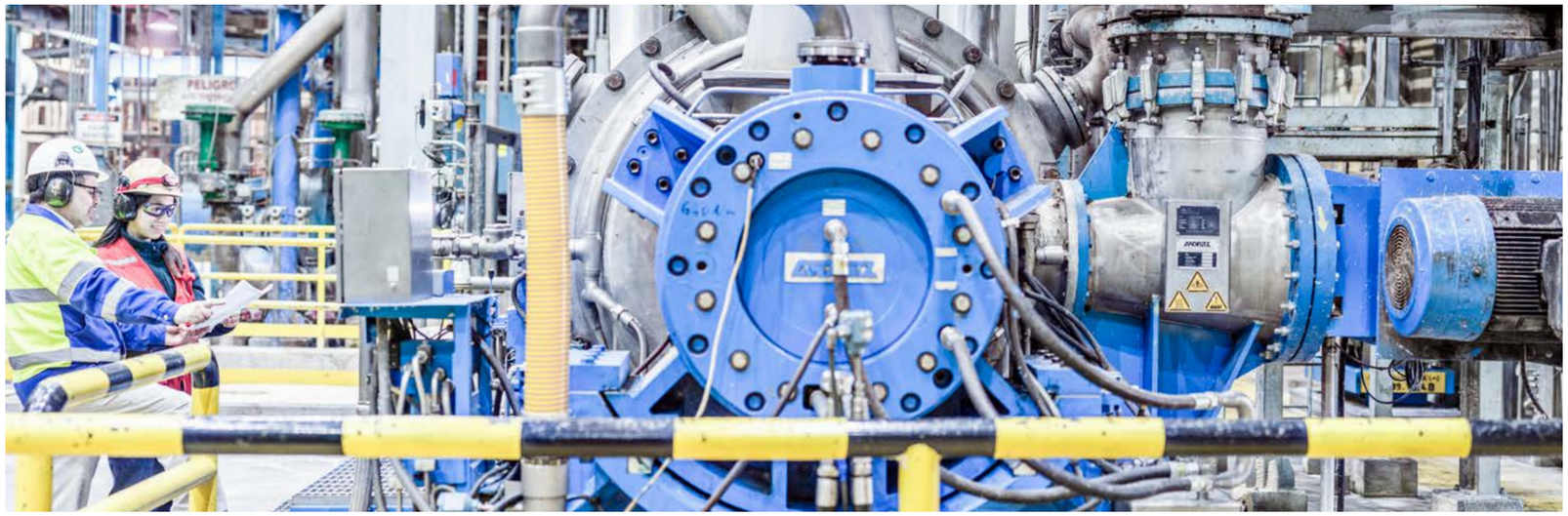
The latest rebuild and upgrade ANDRITZ conducted at the mill provided many challenges: A bleaching system upgrade to increase BTMP production from 30 to 37 t/h, at the same time as maintaining pulp properties and chemical consumption to the same levels as before the project. Also, a reduction in energy use was requested.

The key equipment delivered as part of the rebuild and upgrade for the project included a machine rebuild of the existing screw press feeding to the HC-mixer, a screw conveyor system linked to the high-consistency bleach tower, a new high-consistency bleach tower with medium-consistency (MC) discharge, and a new pulp screw press.

Edin Paredes, Project Manager, CMPC Biopackaging – Boxboard, says, "The capacity of the board machine was increased again in 2016 and, of course, whenever there is a capacity increase in one part of the mill, a bottleneck in another part of the mill becomes apparent. This time it was the bleaching area. This was important from a quality aspect, as we needed to maintain the stiffness and bulk of our board products and an upgrade to the pulp area was essential.

"We had several meetings with ANDRITZ; it was really good for us because we were talking to people who virtually knew this mill as well as we do, having worked together on a lot of projects in the past."

High-speed ANDRITZ HC refiner S3068 with side entry plug feeder



ANDRITZ Pulp Screw Presses

Left to right: Alex Valdés, Contract Administrator, ANDRITZ; Marcelo Ribeiro, Senior Technical and Commercial Manager, ANDRITZ; Micheal Jaeger, Director Order Execution, ANDRITZ; Juan Constabel, Operation Manager, CMPC Biopackaging – Boxboard; Pedro Hermosilla, Senior Sales Engineer, ANDRITZ; Edin Paredes, Project Manager, CMPC Biopackaging – Boxboard

ANDRITZ PHC bleach tower with MC discharge

Paper wrapping at the end of the line

Michael Jaeger, Director Order Execution, Paper, Fiber and Recycling Division, ANDRITZ, says, "Leading such a rebuild project to a successful conclusion requires a high degree of planning and good cooperation between the parties to tackle the challenges in a timely manner."

Contracts were signed in August 2016 to upgrade the complete high-consistency peroxide bleaching system at the mill. Start of erection began just over a year later and commissioning and start-up of the upgraded system took place September 27, 2017.

Marcelo Ribeiro, Senior Technical and Commercial Manager, ANDRITZ Paper, Fiber and Recycling Division, says, "There were a lot of challenges with this project, but we already had a head start as we have a great relationship with the mill people here – our association with the mill goes back a long way.

"The main challenge was the very short shutdown time, just 21 days, so we made sure we carried out as much work as we possibly could beforehand. There were also transport issues with the very large bleaching tower that had to go into an existing building and, of course, consideration that the mill is located in an area of high seismic activity – there was a magnitude 9.4 earthquake here in 2010."

During the installation over the 21 days, the teams of both CMPC and ANDRITZ worked around the clock to get everything installed and up and running. "We had a full order book on our board machine," adds Paredes. "There was no option for delays, and the interaction with ANDRITZ was good before, during, and after the shutdown."

The bleaching system upgrade at CMPC Biopackaging – Boxboard carried out by ANDRITZ has resulted in a 20% increase in BTMP production at the same time as maintaining pulp properties and chemical consumption to what it was before. Specific energy consumption per tonne of pulp has reduced due to the installation of the new bleach tower discharge system, the MC pump, as well as the removal of several conveyors and pumps.

Constabel adds, "All these expansions we have had are not just about increasing capacity; it's about cost leadership. We started out with a board machine making 130,000 tonnes a year, and now we have one three times that size – but we didn't pay three times the cost. We also have the latest in BTMP technology to produce the pulp."

OPTIMIZING BY MEASURING AND MANAGING

As part of its cost-leadership initiatives, the mill benefits from the Metris OPP (Optimization of Process Performance) contract for measuring and managing production data from bleaching plant and refining – and it is already showing significant returns when it comes to chemical savings. "Metris OPP has become part of our 'excellence in operation' project, where we are managing the data from the pulp operations," says Constabel. "It's incredible what you can do when you begin to realize that you can manage the fluctuations in production efficiencies, particularly in the case of chemicals and energy usage. You can see where you are losing and where you are gaining, and then manage the process accordingly."

The results of using Metris OPP at the mill for the BTMP plant are reaping rewards in particular on chemical consumption, with the mill recording dramatic savings on chemical use equating to over USD 100,000 a month.

CMPC Biopackaging – Boxboard has also embarked on one of the first ANDRITZ Synergy agreements, which ensures the operational continuity of equipment and processes in the levels of efficiency required by the woodyard and the mechanical pulp plant, thereby maintaining the quality of the fiber obtained. The objective of this agreement is to enable the mill to deliver mechanical pulp in the quality and quantity necessary for the manufacture of folding boxboard, and according to the demands of the board machine. ANDRITZ already had a contract providing technical assistance of specialists and supervision for the BTMP plant, as well as another one for maintenance of the chipper and supply of knives (HQ+) for the woodyard, which have been running since 2009. The latest Synergy contract will cover these areas for the next three years.

Constabel concludes, "At the outset during the creation of this mill, we asked for the very best in technology, but you don't buy just technology or equipment, you buy the concepts. Here we are, decades later, still using ANDRITZ, and that is because, in my opinion, the company has the best technology concepts; good, strong equipment and products; and excellent optimization services. These have all contributed to our own success."

MICHAEL JAEGER
Director Order Execution, Paper, Fiber and Recycling Division, ANDRITZ

"Leading such a rebuild project to a successful conclusion requires a high degree of planning and good cooperation between the parties to tackle the challenges in a timely manner."

SCOPE OF SUPPLY

THE ANDRITZ BLEACHING SYSTEM UPGRADE AT CMPC BIOPACKAGING – BOXBOARD INCLUDED:

- The machine rebuild of the existing screw press feeding to the HC mixer
- New screw conveyor system to the PHC bleach tower
- New ANDRITZ PHC bleach tower with MC discharge and integrated MC pump
- New ANDRITZ Pulp Screw Press SCP1410 replacing the existing one, including dilution conveyor
- New MC pump after pulp screw press SCP2

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