

# **LD CELULOSE'S RAMP UP EVOLVES AND COMPANY ALREADY DIRECTS ITS DISSOLVING WOOD PULP TO LENZING**

With the goal of reaching nominal capacity in the first half of 2023, the plant is doing the necessary production adjustments so that all the competitive differentials can operate at full capacity

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Special for *O Papel*



ADOBESTOCK



In line with the schedule announced in 2020, the startup of the LD Celulose plant took place in the first half of April. The result of a joint venture between Austrian Lenzing and Brazilian Dexco, the company is dedicated to the manufacture of dissolving wood pulp from an up-to-date industrial park installed in the Triângulo Mineiro, between Indianópolis and Araguari, with nominal capacity of 500,000 tons per year.

Lenzing, world leader in the manufacture of specialty and sustainable fibers for global markets of textile and non-textile products, allied with Dexco, the largest manufacturer of wood panels in the Southern Hemisphere, with a background of decades in forest management in Brazil, to establish a solid and promising project. “LD Celulose strengthens our backward integration in dissolving pulp and thus also specialty fiber growth in line with our corporate strategy. We are committed to strong organic growth in this field. Thanks to LD Celulose and the new pulp plant, Lenzing becomes even more competitive, acts even more independently and strengthens its market position as a sustainability leader in the production of wood-based specialty fibers”, says Christian Skilich, Chief Pulp Officer (CPO) at Lenzing.

It is worth noting that the dissolving wood pulp is a raw material of high chemical purity, essential for the manufacture of wood-based textiles and specialty fibers, and therefore a more premium product in relation to the pulp intended for paper production.

In addition to ensuring Lenzing’s internal supply, LD Celulose’s production - which stands out as the largest single-line dissolving pulp production capacity in the world - will allow Lenzing to reach an important milestone in its climate neutrality strategy. “ In 2019, Lenzing made a commitment to reducing its greenhouse gas emissions per tonne of product by 50 percent by 2030 compared with a 2017 baseline. The aim is to be climate-neutral by 2050. As one of the most productive and efficient mills in the world, also in terms of energy generation, LD Celulose will offer its contribution by powering the mill with renewable energy and exporting the surplus value to the national electricity grid”. Skilich highlights about the power cogeneration plant that will direct more than



50 percent of the electricity generated into the public grid as renewable energy.

“For Dexco, LD Celulose is part of the diversification process of our businesses, mitigating the risks related to the operations, as it expands the range of operations to the pulp market, which is less exposed to the level of activity of the domestic market due to the fact that the revenue is 100% dollarized”,

points out Henrique Haddad, Chief Finance Officer (CFO) of Dexco. About the significance of the investment that consolidated the joint venture with Lenzing, “the complementarity in the segments of operation, as well as the economic structure established in the project, ensure that LD Celulose’s operations follow the best management practices, with international standards of

excellence, and a transparent relationship with all stakeholders,” adds the executive.

Haddad recalls that LD Celulose heads an already consolidated forestry operation, responsible for planted forests of high performance eucalyptus, the result of a long genetic improvement work developed by Dexco. “The forests that supply the mill are Forest Stewardship Council® (FSC®) certified, a seal that attests



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to an economically viable, socially fair and environmentally correct management”.

The sum of the project’s competitive advantages means that the LD Celulose operation has a low production cash cost. “Besides the primary objectives of each company - Lenzing aiming to increase the availability of fibers for its business and Dexco wanting to diversify from an existing asset - both shareholders who

formed our joint venture have a very clear focus: to produce dissolving wood pulp at a competitive cost. Therefore, we were born with the purpose of being a high performance company, in quality and especially in terms of cost”, reinforces Luís Künzel, CEO of LD Celulose.

The definition of the LD Celulose plant location marked the initial kick in the development of the project focused on competitiveness. Künzel says that after a detailed analysis of aspects such as sustainability, logistics and cost, the location was selected as the most compatible with the shareholders’ guidelines. “The park is located within a forest block that represents 60% of the wood that will be consumed by the plant, which significantly shortens the transportation distance. Another positive point is the flat topography of the region and the fact that we are next to a railroad with direct connection to the Portocel port.”

The quality of the product and the respect for the environment were the other premises that guided LD Celulose’s project. “Our bleaching process is 100% TCF (Total Chlorine Free), without the use of chlorine, based on oxygen, ozone and hydrogen peroxide. We also have a

tertiary effluent treatment system, that is, it includes three stages and exceeds the standard required by current legislation, positioning us at the forefront from the environmental and sustainability point of view. Another differential is the production of organic fertilizer and agricultural corrective in a composting plant from the residues of the pulp production process”.

Widening the contextualization to the strategies behind the enterprise, LD Celulose’s CEO highlights that the fact that the production is primarily intended to meet the demand of Lenzing’s mills is another contributor to the level of optimization sought, since it eliminates the effort of selling the additional production to the market. Another significant contribution from Lenzing was the availability of technology for the industrial process, mainly in cooking and bleaching. As for Dexco, in addition to its in-depth knowledge of forestry, including the genetic improvement of eucalyptus, the fact that the company is Brazilian helps with the legal and political aspects of the country.

Today, in full ramp up process, LD Celulose is dedicated to the formation and



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**Dissolving wood pulp is a raw material of high chemical purity, essential for the manufacture of wood-based textiles and speciality fibres**

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consolidation of its own organizational culture. “As we are a new company, which brings together professionals from different plants and locations in Brazil and new employees, we are setting in motion a process of formation of our culture. When I say our culture, I mean not only the culture of LD, but also as part of the pulp division of the Lenzing Group, broadening the feeling of

belonging to an international company with global operations”, defines Künzel. In terms of organizational structure, the CEO of LD Celulose emphasizes that the priority is to meet the objective of being a “lean and competitive” company.

When it comes to Covid-19, LD Celulose’s project has not escaped the reflexes resulting from the pandemic. “Between 2020 and 2021, we were at

the peak of the project’s development. Building the mill was a huge challenge. Not only for the protection of workers, but also to adjust the product supply chain and workforce training. But thanks to strong planning by the team and the implementation of very strict protocols, with constant awareness-raising among the workforce, we were able to minimize such impacts and



The estimated energy consumption of the plant will be around 60 MW and 65 MW, while the amount of energy made available to the grid should be between 85 MW and 90 MW



finished the project not only on time but also on budget,” reports Künzel.

João Sevilha, chief financial officer of LD Celulose, informs that the contribution of resources directed to the development of the project totaled US\$ 1.8 billion, an amount that included industrial and forestry investments, as well as other costs for the implementation of the operation. Of this total, US\$ 1.2

billion was provided by financing from IDB Invest and the IFC, with terms varying between 11 and 13 years. Lenzing and Dexco were responsible for an average contribution of US\$ 624 million, of which approximately US\$ 116 million referred to the forestry contribution equivalent to 43,000 hectares of forests. “Despite the exchange rate variation, which influenced the final value in local currency, we remained within the values estimated at the beginning of the project. So far, we are in line with the outlined budget and within the expected timeframe for completion,” said the executive.

The already consolidated financial structure of the shareholders, added to the competitive performance of both in their respective markets, emerged as another contributing factor to the competitiveness of LD Celulose. “Certainly the solid financial structure behind our shareholders made it easier to obtain these resources and execute the project. They are capitalized companies, which have their own resources to invest in this company, as well as to guarantee with the international agencies the payment of the financing”, points out Sevilha.

Also according to the contextualization of LD Celulose’s CFO, investors of projects with high amounts and longer financing terms need to have some predictability about the country’s situation to base their strategic decisions. “The more predictable the political and economic environment, the easier it is to make decisions, in addition to enabling the country to have a consistent and lasting growth in the long term. In these last two years, however, the Covid-19 pandemic has greatly undermined the issue of predictability. More than that, entire sectors have had to review their strategies and even their performance, due to limited movement and transport in general,” justifies.

## Industrial park provides a series of technological differentials

Focusing on the equipment that makes up the LD Celulose production line, Claudinei Santos, General Project Manager of the company, informs that the plant holds state-of-the-art and already proven technologies. “Since the initial stages of the project, we count with the participation of the main technology suppliers of the sector in our technical discussions, always having in mind the assumption of employing improved technology”, contextualizes.

Demuth was the supplier responsible for the LD Celulose wood yard, composed of two chipping lines. The cooking stage presents digesters type batch, whose contract in EPC regime was signed with Confab, but also counts with Lenzing group’s own technology. Valmet’s supply, also under an EPC contract, was represented by four islands: fiber line, drying machine, evaporation and lime kiln. The recovery boilers and biomass, in turn, were technologies supplied by CBC, while the water and effluent treatment plants are Swiss technologies. The two turbogenerators of the industrial park were supplied by Siemens.

In practice, the large process islands that form the mill are quite similar to those of the kraft pulp production process. Some particularities, however, especially related to water quality and the application of materials had to be considered in the design. “In many process lines it was necessary to use a considerable amount of stainless steel, including piping and various tanks. This demanded long discussions at the time of the engineering study, since the degree of specification was higher than the standard technologies the suppliers were used to,” contextualises Silvio Costa, mill manager at LD Celulose.

“We have a chloride and potassium removal system, which represents a



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crystallization stage, developed and supplied by Valmet. With regard to atmospheric emissions, our lime kiln, recovery boiler and biomass emission system is within the Best Available Technologies (BAT), also exceeding the standards required by current legislation,” Santos lists other technological differentials that result in productive and environmental increases.

Also according to the Project Manager, the biomass boiler burns not only bark but also non-condensable gases - a capacity that the recovery boiler also has. “With this system prepared for the recovery of gases, we have optimum energy efficiency, which results in significant energy generation,

far exceeding the mill’s consumption,” said Santos, informing that the estimated consumption of the plant will be around 60 MW and 65 MW, while the amount of energy made available to the grid should be between 85 MW and 90 MW - levels that should be reached in the first half of 2023, when the plant reaches its rated capacity.

LD Celulose’s entire project was based on the prioritization of aspects related to the sustainability of the different stages that make up the manufacturing process of dissolving wood pulp. The generation of energy for its own consumption and export of the surplus to the national electricity system stands out among the examples that reflect the promotion of

circular economy practices, but it is not an isolated fact. It is added to another relevant differential of the layout: the plant does not require organic and industrial landfills. “We have a composting area of an expressive size, which encompasses open and covered spaces. Any and all residue generated in the pulp production process, whether biomass waste, sludge, dregs or grits, are 100% reused in the composting method,” Santos details about the production with an average volume of 12,000 tons/month. “Dispensing with the use of landfills means that we stop creating an environmental liability and we promote the reuse of waste as a by-product of pulp production”.



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At the end of the production process, confirms Costa, “we have three products: dissolving wood pulp, electric energy and the compost from the composting process, used as fertilizer and soil corrective, strengthening the circular economy practices, Lenzing’s premise when joining this project”.

### **LD Celulose already sends production to Lenzing plants**

A good part of the competitiveness of the production cash cost presented by LD Celulose comes from the logistical differentials planned in the project. Today, the production is distributed to the Lenzing units through the railway

line that connects the Triângulo Mineiro plant to Portocel, in Barra do Riacho (ES), from where the pulp goes to Asia and other destinations.

The forests, added to the other municipalities that make up the company’s forest mass, make LD Celulose present an extremely competitive inbound, with availability of raw material in the entire surroundings of the mill. At the other end of production, the outbound stage is the specialized pulp port, Portocel, 1,400 km away. “Although the distance from Portocel is greater, if compared to the port of Santos, located 700 km from our plant, we chose this alternative precisely because the railroad modal presents more competitive solutions,” explains Elio Moraes, LD Celulose’s Logistics Manager.

Detailing the logistics project that resulted in the current operational routine, Moraes reveals that a railway branch line built by LD Celulose enables the train to arrive directly at the company’s warehouse. “We planned it so that the 62 sider-style wagons that form each train are loaded in the covered area of the plant’s warehouse. The advantage is the loading agility. Our goal is to do the entire loading, which represents a total of 64 tons of dissolving wood pulp per wagon, leading to an average of 4,000 tons per train, in ten hours. Moraes informs that the total transit time is 10 days, including loading, production output, arrival at the port and the train’s return to the plant. “This way, if the train loading is done on day 1, that same composition is available again on day 11 for a new loading. So, every three days, we have a train leaving the plant, totalling ten loadings during the month, which can drain the equivalent of 42 thousand tons, the average of our monthly production”.

### **Manpower training process is still active**

The training process that led to the formation of part of the team that currently works at the LD Celulose plant

began in August 2020. Mara Benevides, manager of Human Resources of the company, says that the Pulp Training Program, promoted in partnership with Senai of Araguari, created 100 vacancies in that first year. “As we were living a still intense period of the Covid-19 pandemic, the theoretical classes that comprised the programme were brought to our own site, where we developed a well-designed safety protocol, according to the constraints of the moment,” she recalls.

Of these initial 100 vacancies, 62 people were admitted, who progressed to the practical training stage. “Today, most of them are assistant area operators or are in the process of promotion to become area operators. This staff represents the people who are the basis of the operation, working in all the production islands and in the laboratory”, says Mara about the scope of professionals dedicated to the operational routine of the plant.

“Last year, we opened another 20 vacancies for this type of training. For next year, the idea is to open another 30. This is a programme that will be updated annually so that we always have professionals from the region in training. At the same time, we are discussing with Senai all the necessary procedures to develop a Pulp Technical Course in the region, with the objective of consolidating this external and internal pole for training people to operate the mill”, says the HR manager about the planning for this and the coming years.

The operational team is also made up of more experienced professionals, who were hired through external selection processes. Mara guarantees that the adaptation of the professionals in the plant has been very positive. “The interaction between teams is still very dynamic, considering that we are in a ramp up process. However, the more experienced staff brings a very useful baggage to the team as a whole”, she says. “We have a periodic follow-up programme. Every



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two months, a professional from the HR area meets with the managers from each area to get feedback, both to monitor performance and to plan the promotions that will take place”, she adds about the operational area, which currently has an average of 340 professionals.

The forestry team is made up of 600 professionals. Of this total, 180 came from Dexco, in a transfer process carried

out between 2020 and 2021. “As Dexco already had a solid forestry operation in the region, we took advantage of about one third of this team to join LD Celulose”, contextualizes Mara.

The company also promoted a manpower training course for positions in the forestry area, including machine operator, tractor driver and rural worker. “Our demand for these

functions is still on the rise. Until 2023, we should have a growth curve of vacancies related to the forestry sector, such as a series of harvesting hires that should accompany the pace of production next year,” says Mara about the estimated opening of another 100 vacancies in the forestry area.

Looking at the other actions based on the ESG concept (Environmental, Social,



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## Highlights about LD Celulose

### Sustainability

- In addition to primary and secondary treatments, LD Celulose has tertiary treatment, ensuring even more quality to the effluent;
- The dissolving pulp production plant does not generate any industrial waste that is not reused within the business itself;
- LD Celulose's production process is TCF (Total Chlorine Free), without the use of chlorine.

### Operational efficiency

- Use of pentatrens trucks inside the forest leads to higher productivity and performance in forest operations.

### People

- LD Celulose will have approximately 1.5 thousand direct employees and fixed outsourced workers with a focus on developing and hiring local labour. More than 380 thousand hours of training have already been carried out.

and Corporate Governance), Giovanni Rettl, LD Celulose Sustainability manager, points out that the theme has evolved a lot in the last years and that the new company was born in this context. "All those initial stages of a project, which include risk analysis, have already focused on environmental issues and defined performance standards aligned also to social issues", he clarifies.

Among the projects that have already started in these early stages of development and construction of the plant is the LDC Plural, focused on diversity. "We have another project, in partnership with Childhood, which started with a proposal to protect youths and adolescents from sexual abuse and ended up expanding to women. Our social investment policy includes periodic diagnoses to check the gaps in the municipalities around the factory, in order to define what types of initiative we can work on and should prioritize", mentions Rettl.

In the environmental area, the highlight is the project focused on circular economy, from the reuse of waste generated in the manufacturing process. "We don't have any type of industrial landfill. Our process waste is directed to a composting plant, which generates fertilizers and soil correctives that are used in our forests," reinforces the Sustainability manager.

### Certified planted forests in nine surrounding municipalities guarantee the mill's supply

The forestry project to meet the wood consumption of the LD Celulose mill aims to reach a total of 70 thousand hectares of planted eucalyptus forest. "Each year of operation of the mill consumes an average volume of 10 thousand hectares. As the growth cycle of eucalyptus in the region is seven years, we reached this goal for the total supply of the mill", explains Claudia Steiner, manager of the Forestry area at LD Celulose.

According to Claudia's contextualization, about 60% of this forest base necessary to supply the mill comes from a single forest block. "The remaining 40%, which will total the 70 thousand hectares necessary to supply all the demand of the mill, are evolving well, within the schedule drawn up, from the leasing model. It is important to highlight that 100% of the wood that supplies the mill is planted by LD."

The forests are certified by FSC®, a seal that attests that the forestry activities reflect an environmentally adequate management. "Sustainable forest management considers water and soil conservation, equally prioritizing planting for immediate supply and practices that will ensure future planting. We have been FSC®

certified since the project's inception, since Dexco's forests already had the seal and we have replicated sustainable management practices in the plantations that came afterwards," Claudia comments.

The fact that most of the forest base is very close to the mill allowed LD Celulose to adopt pentatrens, trucks that run inside the forests, in the wood transportation operation. Such logistics strategy increases productivity by more than 50% in relation to traditional trucks that run on public roads, besides reducing the number of trips and the consumption of diesel oil. LD Celulose's total average radius is estimated in 70 km, after contracting the whole area.

Among the points of attention in the planting process are the forest fires, especially in the dry season, which occur between June and September. "We have a very strong culture of fighting forest fires, especially during these more critical months. In addition to a monitoring centre, which receives images from camera towers that monitor the forests from a distance, a roster of highly trained firefighters is set up every week. The aim is to identify the start of the fire and take fire-fighting measures quickly", says Claudia. ■



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