



Type what you want to search

Search

04/05/2022



Vale starts work on Tecnoled's first commercial plant in Marabá (PA), which will contribute to the decarbonization of the steel industry

Developed over 35 years, innovative technology makes it possible to produce the so-called green pig iron, used in the steel production, by replacing coal with biomass, reducing carbon emissions

Vale and the Government of the State of Pará are holding today (4/5/22) an event that marks the beginning of the construction works of the first commercial plant of Tecnoled in Brazil, in Marabá, in the southeast of Pará. Tecnoled's technology is innovative in the market and allows the production of so-called green pig iron, by replacing metallurgical coal with biomass, thus reducing carbon emissions up to 100%, being an important step in contributing to the decarbonization of the steel industry. Pig iron is used in the steel production.

The unit will have an initial capacity to produce 250,000 tons per year of green pig iron, with the possibility of reaching 500,000 tons in the future. The start-up is scheduled for 2025 with an estimated investment of approximately BRL 1.6 billion.

"The implementation of Tecnoled represents an important step in the transformation of mining, contributing to making the process chain increasingly sustainable. The Tecnoled project is of great importance to Vale and to the region and will bring gains in competitiveness, environmental sustainability and development for the region", says Vale's president, Eduardo Bartolomeo.

In the implementation phase of the project, which will work in the area of the old Ferro-Gusa Carajás, in the industrial district of the municipality, it is estimated that around 2,000 jobs will be generated at the peak of the works. In the operational phase, about 400 direct and indirect jobs should be created, according to progress and engineering studies.

Technology

The Tecnoled furnace is much smaller in size than a traditional steel blast furnace and is quite flexible in the use of its raw materials, which can range from iron ore fines and steel residues to dam sludge.

As fuel, the furnace can be fed by carbonized biomass, such as sugarcane bagasse and eucalyptus. Both are transformed into briquettes (small compact blocks) and deposited in the furnace, generating green pig iron. The furnace also allows the use of thermal coal itself as fuel. In this first moment, fossil fuel will be used to evaluate the performance of the plant, as this will be the first large-scale operation of the technology.

"Gradually, we are going to replace coal with carbonized biomass until we reach the goal of 100% biomass", explains Leonardo Caputo, Tecnoled's CEO. The flexibility in the use of fuels in the furnace allows the operating cost to be reduced by up to 15% compared to a traditional blast furnace.

Developed over the last 35 years, Tecnoled's technology also eliminates the coke furnaces and sintering processes, stages prior to the steel production in the steel mill that are intensive in the emission of greenhouse gases (GHG).

A cost gain in the investment of new steel plants of up to 15% is estimated, by eliminating the need for coke furnaces and sintering with the use of the Tecnoled furnace. In addition, the plant is self-sustaining in terms of energy efficiency. All the process gas is reused and a portion is used for energy cogeneration. Slag, waste generated in the production of pig iron, is a by-product used as raw material in the cement industry.

Currently, Vale maintains a demonstration plant in Pindamonhangaba (SP), with a rated capacity of 75,000 tons/year, where tests were carried out to develop the technology and technical and economic feasibility.

Scope 3

Tecnoled's commercial plant in Marabá is part of Vale's effort to offer its steelmaking customers technological solutions to help decarbonize their production processes.

In 2020, the company assumed the goal of reducing Scope 3 net emissions by 15%, which includes customers and suppliers, by 2035. Of this total, the company will contribute up to 25% through a high quality products portfolio and technological solutions, including green pig iron. Today, the steel industry represents 94% of Vale's scope 3 emissions.

Vale also announced the goal of zeroing its direct and indirect net emissions (scopes 1 and 2) by 2050, and to that end, it is investing between US\$ 4 billion and US\$ 6 billion, as well as committing to recover and protect another 500,000 hectares of forest in Brazil. Operating in Pará for almost 40 years, the company supports ICMBio in the protection of six conservation units of the so-called Mosaico de Carajás, which total 800,000 hectares of Amazon forest, an area equivalent to five times the city of São Paulo.

More information



Media Relations Office

imprensa@vale.com

[Click here](#) to see our contacts