



Alunorte Improves Operational Availability to 99% via System 800xA Extended Automation

Faster decision making and maximized production are achieved while product quality is maintained.

Client: Alunorte
Location: Barcarena, Pará state, Brazil
Scope of Work: ABB's System 800xA Extended Automation with Optimize^{IT} Real-Time Production Intelligence (Real-TPI)

"The ABB system has helped Alunorte reach production goals since start-up. If the DCS can give you good data, you can change the data into information. If you have the power of information you can change everything, but you need the right tool to make the change. Alunorte drives for improvement and ABB is one of the most important tools for the increase of capacity production."

Jorge Aldi
 Process & System Development Manager
 Alunorte



Alunorte recently enhanced its control system by adding System 800xA Extended Automation as part of an expansion project. By completion of this project in 2006, Alunorte will become the largest alumina refinery in the world, with a total of five lines and capacity production of 4.3 million ton/yr.

The Background

Alunorte, in the Pará state in Brazil, is presently one of the five largest alumina refineries in the world. It began its production in 1995, with two lines and an installed capacity of 1.1 million ton/yr, using ABB's MasterPiece technology. By 2002 Alunorte had reached 1.6 million ton/yr. As a result of the expansion 1 project, a third line was added in 2003, and the MasterPiece technology was evolved to fully integrate with an Advant control system for all the lines, producing 2.5 million ton/yr by 2004.

The Solution

Alunorte enhanced its control system by adding System 800xA Extended Automation when it began its most recent (second) expansion project. By completion of this project in 2006, Alunorte will become the largest alumina refinery in the world, with a total of five lines and capacity production of 4.3 million ton/yr. The control system utilizes fieldbus communications (both Profibus and Foundation Fieldbus), as well as ABB's Optimize IT Real Time Production Intelligence (Real-TPI) product.



Real-TPI identifies losses, whether they are maintenance, operational or even losses due to problems in the process. It allows Alunorte's operators to determine the root causes of the losses, in order to eliminate them. This contributes directly to production increases and greater equipment availability.

ABB control systems have contributed significantly to increasing production and to the results obtained by Alunorte during its ten years of operation. The total stability and extreme reliability of the ABB control system allow operators to use all the information available in the system to make educated decisions and take actions to prevent production losses and shut-downs while maintaining product quality. The expansion with ABB's System 800xA will allow Alunorte to run at 99% operational availability (excluding scheduled maintenance), which means the plant will be able to produce up to 99% of the operational time, slashing downtime to just *one percent*. Those numbers will make Alunorte's plant the most efficient alumina production facility in the world when installation is completed in 2006.

Results

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"My work involves a series of activities where I have to provide safety," says Rui Guilherme Medeiros, an Electrical Engineer at Alunorte. "During the eight years I have worked here, it is hard to remember any problems, so we consider it an extremely reliable system, both in terms of maintenance and operations."

Why Choose ABB?

- Reducing Time to Decision and Action
- Engineering for Maximum Performance
- Investment Enhancement Through Evolution
- Integrating Information for Improved Visibility

Alunorte demands day-to-day improvements, improvements, and more improvements. The ABB software and the entire control system have added quality to my day-to-day activities."

Medeiros went on to explain that it's very important to operators to be able to trust the information they receive on the screen. That's a basic factor in enabling correct decisions. The ABB software allows operators to work anywhere in the plant in safety, in spite of not being an expert in every area – because they can easily use and understand the one, plant-wide system. Thus, training time and expense are greatly reduced while safety is greatly increased. Medeiros again: "We are totally sure of what we are doing, as we know the product and what it can offer us, in a very clear and objective manner. That translates into easiness, reliability and promptness: benefits we bring to the operation."

Alunorte has introduced several improvements to the process and the control system since the plant opened. This has been transparent from the operations point of view. "Operations has not been affected, nor the quality of the alumina or the operator's certainty in using the data shown," said Medeiros. "We've made some improvements to the system; we've changed controllers, improved screens, and the system's level of safety and reliability remain intact. Even after introducing enhancements, you don't lose reliability, but rather add profits and benefits."

For more information on how ABB's System 800xA Extended Automation can be employed to solve your process control issues, visit us at www.abb.com/controlsystems.

For more information on how ABB's Industrial IT technology can be employed to solve your refining control issues, visit us at www.abb.com/chemical.



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