

Putting ACE® in place boosts production, saves money.

Is that better basis weight profiles in the white liquor plant ... and less chemical costs in the drying plant ... or better profiles in the drying plant and less chemical costs in the white liquor plant ... or? Sometimes we get so confused! Better let the experts at Veracel and ANDRITZ Automation tell you the story...



“Good stability ... good lime quality ... and reduced oil consumption. We are no longer a bottleneck.”

Estanislau Zutautas,
Causticizing/Kiln Coordinator

Two recent installations in Brazil show the versatility of the Advanced Control Expert (ACE®) in practice. What is ACE®? Marcos Freitas, Sales Director for ANDRITZ Automation in Brazil, explains:

“Take your very best operator, keep him/her alert and motivated 24 hours a day, seven days a week, and there you have ACE®. ACE® is an expert operator, optimizing a process (kiln or drying plant or bleach plant or whatever) for production, quality, and safety. The operator sets a production target and ACE® controls the production rate, temperatures, flows, etc. to make that production. ACE® always tells the operator what it is doing and why. It is not a black box, but an operator’s friend. It works with anyone’s DCS and is very easy to install.”

What got Gilmar Franco’s attention (Veracel’s Pulp Production Manager) was that ANDRITZ had so much confidence in ACE®. “They said that if it didn’t achieve the results, they would remove it at no cost to us,” Franco says. “We have no intention of giving ACE® back. We have become believers.”

Kiln ACE®: stability and cost savings

Estanislau Zutautas, Coordinator for the Causticizing/Kiln area, came to the Veracel mill in April 2009. “At that time, operators were trying to use advanced process control software from another supplier, but were not getting good results. So, they stopped using it.”

Specialists from ANDRITZ Automation came to the mill to install and fine-tune the Kiln ACE® system. “This period of time was valuable,” Zutautas says. “Their specialist had his own experiences with kilns

around the world. He worked side-by-side with our operators, asking questions and discussing the best way to control the kiln. It was helpful to have these discussions, and the outcome was very good.”

Even before Kiln ACE®, Veracel was improving the recausticizing plant. Ari Medeiros, Recovery & Utilities Manager, says, “We did a very good job together with ANDRITZ to change the internal design of the white liquor filter (CD-Filter). We have been running this new design for a year and the results are very nice. Calcium oxide in the lime is reduced, which improves the lime mud dryness.”

After Kiln ACE® was installed, Veracel ran the kiln for one month with no control to establish a baseline. Then the control was turned on.

“We got very good stability in the kiln operation and very good lime quality from the beginning,” Zutautas. “A major goal for us was to reduce oil consumption by substituting methanol from the stripping plant. In the past when we tried this, the TRS emissions rose too high. After all the changes we made after the shutdown, we reduced oil consumption from 130 kg/t to 100 kg/t. We can attribute about 6% oil savings directly to Kiln ACE®.”

“What has helped us most is the stable quality of lime,” says operator Evandro Bove. “This stability allows us to burn methanol within TRS limits, and also frees us up to focus on other ways to improve the process. We are no longer the bottleneck, and our throughput is better than expected.”



ANDRITZ delivered the white liquor plant (kiln and recausticizing) to Veracel on an EPC basis for the greenfield start-up in 2005. ▼



▲ Kiln ACE® has become the Veracel operators' best friend.
"We now have all the tools we need."

The ANDRITZ drying machine at Veracel. Dryer ACE® optimizes production and controls the basis weight/moisture profiles to produce an excellent pulp sheet. Plus, it coordinates control of the screening plant. ▼



"We have much better control of temperatures in the calcination zone, and have eliminated hot spots," says operator Francelino Filho. "This extends refractory life much longer than we ever experienced before. I have to confess that I did not believe it would be possible to operate the kiln with oxygen below 1.5%, but Kiln ACE® has shown this to be possible. This saves us fuel and keeps TRS emissions low."

"When you have confidence in your instruments and lab reports, and you have a tool like Kiln ACE®, it's easy to control the process," Zutautas says. "We now have all the tools that we need."

"In general, the cooperation with ANDRITZ has been excellent," says Medeiros. "The white liquor plant used to be one of our biggest bottlenecks, but now we are running 10-15% over the design capacity in a very stable way."

Dryer ACE® improves upon already outstanding performance

Jorge Sarcinelli, Drying and Packaging Coordinator, recounts the story at Veracel. "ANDRITZ talked to us about installing a Dryer ACE® system soon after start-up," he says. "In October 2008, we took the first step, which was to use the system for optimizing basis weight and moisture profiles of the pulp sheet."

In order to build the computer model, ANDRITZ Automation worked with Veracel to take measurements on the dewatering and drying machine at various positions and times: at different production rates and with different ratios of virgin-to-broke. This took some time, because according to Sarcinelli, "We were running at full production. We didn't have the luxury to slow the machine down just so they could take their measurements. But, over several weeks they were able to build the complete model."

With Dryer ACE® running, Veracel saw that it had improved the quality of their pulp sheet in terms of moisture and basis weight control on the drying machine.

"What was equally important for us, though, was to get control of our screening plant," Sarcinelli says. The mill was experiencing disruptions in screenroom whenever there was a disturbance in the fiberline. "If the kappa went down and pulp viscosity lowered," Sarcinelli says, "the pressure differential in the screen would rise and the interlocks would shut the screen down. We were also having problems with plugging."

So, step two for Dryer ACE® – screening management – was added. The work was completed in June 2009.



▲ On the machine, basis weight and moisture profiles are improved. In the screenroom, shutdowns due to fiberline disturbances have been eliminated – and costly sheet breaks are minimized.

“ACE® operates the total drying plant to the maximum of what the machinery can produce at that moment.”

Jorge Sarcinelli, Drying and Packaging Coordinator

Jorge Sarcinelli (left) with Marcos Freitas
from ANDRITZ Automation

“With ACE®, we have control of the screenroom,” Sarcinelli says. “ACE® will change the flows to the different screens, accommodate changes in pressures, and enable the screenroom as a whole to run in the best way possible. ACE® operates the total plant to the maximum of what the machinery can produce at that moment, based upon the current conditions.”

The situation at Veracel today is that the drying plant no longer feels the impact of minor disruptions in the fiberline. “If there

is variability in the pulp when it arrives here, we can see the ACE® system moving setpoints to control the screening and reduce the machine speed automatically,” Sarcinelli says.

According to Sarcinelli, it's not so simple to measure the economics of Dryer ACE® as it might be in other process areas. “I can tell you this: we have eliminated the shutdowns that we had before,” he says. “Within the 16-hour buffer inventory we have with the fiberline, ACE® is in control.

“Another measure is pulp quality. We have fewer variations in moisture, which saves us money. At the same time, if we want to go from 150 m/min to 185 m/min, ACE® raises the machine speed while keeping the moisture and basis weight profiles in the target range. It's very easy for us and avoids lost production.”

According to Pulp Production Manager, Gilmar Franco, “After the installation, we could see the results immediately. The process runs in a very stable condition and the control is completely automatic. The system is very reliable and we use it all the time. The original expectation was to have better control of the drying machine. The control of the screening plant is a big plus for us.”