

Sindus OPP

Risk-free process and profit improvement



Fast process and profit improvements without capital investments.

At last: a service where process improvements can be achieved in days, not years!

Even if your mill has the world's most modern automation system, there is always room for process improvement. Studies show that about 80% of the control loops in the system are poorly tuned and that, quite often, the process runs better in manual mode than automatic.

ANDRITZ has a new service called Sindus OPP (Optimization of Process Performance) to identify opportunities in your mill to save money and stabilize production. It is risk-free, requires no capital investments, and pays for itself from the savings you generate.

How does the service work?

Sindus OPP combines powerful analytical software + a local service team's knowledge of instrumentation and control + a remote tie-in to ANDRITZ's chief process and equipment experts.

The analytical software collects information from your DCS and PLC systems about each control loop, control valve, motor, and variables in the process. Sophisticated signal processing and statistical tools in the software identify loops that are not performing well and predict the economic impact on the process.

Then, the human expertise takes over. ANDRITZ experts work with your operations and maintenance people to prioritize the opportunities and make corrections. For some loops, it can be a simple fix (like repairing a valve or replacing a bad instrument) or tuning. Others require analyzing the overall control objective and changing the process control strategy to eliminate: off-spec production, over-consumption of chemicals and energy, sources of process variability. The result is an increase operational stability and reduction of waste.

OPP benefits

- Identifies improvement and savings opportunities
- Powerful signal processing and statistical analysis of control effectiveness
- Saves money by reducing off-spec product or wasted raw materials
- Increases production by increasing process stability
- Better quality end product – less variation
- Prediction of failure in specific equipment
- Increases equipment availability
- No capital investment required
- Flexible payment – can be based on savings achieved

◀ ANDRITZ experts work with your team to prioritize opportunities and take corrective actions to improve your process.



▲ The analytical software in Sindus OPP collects information from your DCS and PLC systems and identifies control loops that are not performing well.

Sindus Optimization of Process Performance (OPP) service.



Sindus OPP increases the competitiveness of your mill through reductions in process variations and improvements in production stability.

Finding the opportunities

The Sindus OPP service investigates and analyzes:

- **Instrumentation:** variability, noise, non-linearity
- **Valves:** saturation, friction, backlash
- **Control:** strategies, loops in manual, loop tuning
- **Process:** disturbances, operator changes, interaction of process variables



▲ Marco Fuzato, Industrial Executive Manager Suzano – Limeira Mill

“We are an integrated mill that manufactures about 390.000 t/a of uncoated, machine coated, off-machine coated and cut-size paper. We have one of the most efficient paper machines in South America, so we are not anxious to make any changes that will take away from our efficiency.

Still, we agreed to a pilot project with Sindus ANDRITZ to see if the OPP service could help us reduce costs. The analytical tools in the Sindus OPP are very powerful. Their experts collected data from our DCS at various departments for about two weeks and uncovered a real opportunity.

We were experiencing very frequent plate changes (every 40 days) on our stock refiners before the paper machines. The Sindus OPP experts discovered that the root cause of the problem was the freeness control (drainability index) of the stock. They felt our control strategy was working, but not very well. They believed they could do better.

They did a simulation to convince us to make the change in the control strategy. Some of our people were hesitant, so we decided to do a test on only one refiner at first. In one day, the freeness variability was reduced by 60%! Refiner plate changes are now at least two times the interval as before.

Sindus OPP service developed a similar strategy for the other three refiners. Basis weight and moisture profiles have also improved.

We're now looking for the next opportunity. I can see that Sindus OPP delivers quick results and does not require capital investments. It is now a part of our efficiency strategy.”

“Sindus OPP is an important part of our strategy.”

“We are working in focused teams to identify short-duration, non-capital projects that can increase our production, improve efficiencies, and reduce costs. The Sindus OPP service fits perfectly with our approach and is an important part of our strategy. It has been so successful that our parent company has expanded it to other mills in Brazil.



▲ Paulo Silveira, Mill Manager, Fibria – Aracruz Unit

ANDRITZ uses its analytical tools and process expertise to find opportunities for improvement in our mill. We meet regularly to compare their list with our own and prioritize the projects to work on together. One of the main criteria for us is that the results should come quickly – 6 months or less.

In 2009, we began a program to reduce process variability using Sindus OPP. Some of the key projects that have been helped by Sindus OPP are: improving the Operative Stability of Fiberline C from 81.3 to 92.6; chemical savings in our bleach plant on Fiberline C of about 1.35 kg/t; and a 4% improvement in the efficiency of our recovery boilers on Fiberlines A and B.

We are seeing paybacks in terms of months, not years. Some current projects with Sindus OPP include: pressure control in our recovery boilers, chemical consumption reductions in our bleaching lines (tighter control of kappa and brightness), reduction of washing filtrate variations which will result in more stable washing, and efficiency improvements in our kiln/re-caust operations.

All these projects with ANDRITZ have a common theme: savings in chemicals, improvements in efficiencies, more stable processes, and higher availability of the equipment. With this in mind, there are many opportunities for Fibria to use the Sindus OPP service.”



Sindus OPP

For the fastest ROI

Sindus OPP service has been utilized by dozens of mills to reduce costs and improve production stability. Real-world examples include: level, kappa, and extraction improvements in the digester; chemical dosages and filtrate balances in O₂ delignification; ClO₂ and NaOH consumption in bleaching; load, air, excess oxygen, and sootblower steam consumption in the recovery boiler; and overall improvements in energy and steam balances; freeness, °SR, grammage, and moisture in paper machines.

In every case, OPP provided a fast return on investment to the mill – much faster than other mill programs such as reliability-centered maintenance, assets management, inventory reductions, etc. In every single case, the economic returns have been quite attractive. To date, 80% of Sindus OPP solutions have demonstrated a pay-back in less than three months!



Some examples of Sindus OPP annual savings

US\$ 24 million/year: Increased pulp production 7% with a 99.94% premium pulp quality

US\$ 10 million/year: 4.8% pulp production increase

US\$ 2.8 million/year: Increased recovery boiler steam generation

US\$ 2.3 million/year: Reduced bleaching chemicals

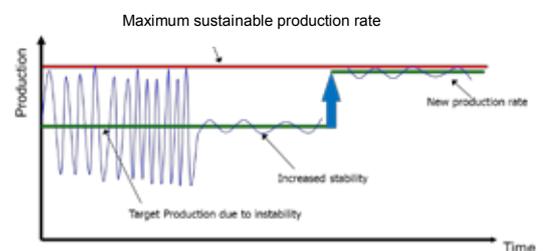
US\$ 2.2 million/year: Increased recovery boiler steam generation

US\$ 1.2 million/year: Reduced LPG

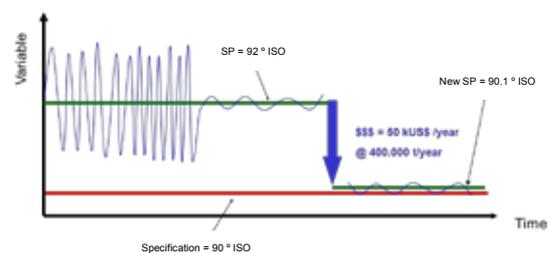
US\$ 500,000/year: Reduced fuel oil consumption; solved problems with pressure and temperature control of boilers and steam to sootblowers

US\$ 480,000/year: Reduced refiner plate repair

US\$ 340,000/year: Reduced NaOH in bleaching



Increased production through improvement in process stability



Reduction in chemical consumption through variability reduction (e.g. brightness control).

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