One of the measurements that ANDRITZ specialists perform is an on-the-run (OTR) profile measurement to monitor the surface wear of the Yankee at production speeds. “Our measurements and tests indicate the proper time to grind the Yankee to minimize material removal,” Herbst says. “Grinding, coating, and polishing are all activities that we perform on-site to shorten the downtime.”

An added benefit of the OTR measurement of the surface topology of the cylinder, Herbst says, is that it “not only improves the drying process, but also can help in resolving MD and CD issues related to wear patterns.”

Starting with an audit

ANDRITZ was first brought in to audit the performance of one of the tissue machines at the Sladki Vrh mill prior to a rebuild. Their on-site work grinding and coating the cast Yankee for TM3 in 2016 met with Paloma’s complete satisfaction. This was the beginning of a close service partnership. A follow-on order for servicing TM5’s cast Yankee was placed shortly afterwards.

ANDRITZ’s Yankee service focuses on adding value with the Yankee. A well-maintained Yankee improves runability and efficient production. The improvements in throughput, machine efficiency, and reductions in downtime can trigger a remarkable competitive advantage for producers like Paloma.

Throughout a long productive life

As the person responsible on-site at Paloma, Herbst knows the challenges of modern Yankee service well. “Each mill, and each machine, is unique,” he says. “We are offering much more than a conventional service, which means we are focused on listening carefully and responding to unique customer needs. We must be near the customer, ready to act. We define our actions together as partners. Since needs are different, sometimes our services are highly customized. Whether it is for a new installation or a rebuild, our services accompany the customer throughout the long productive life of their Yankee.”

ANDRITZ Yankee service is for Yankee cylinders delivered by any OEM. Services are available for all types of Yankees, Herbst notes, for tissue or paper machines, MG paper or tobacco, steel or cast iron Yankees, old or new. ANDRITZ offers solutions for operating units or anticipated upgrades or replacements, and to solve specific issues related to safety, capacity, or quality.

“We really appreciate the competence of ANDRITZ and their willingness to transfer their knowledge to our people,” says Bedenik. “ANDRITZ stands apart from its competition in that they offer consultation before, during, and after the execution of the work. Their pricing is very competitive. Their speed of response to our needs or questions is excellent. In our case, since we are close to their headquarters, collaboration is easy.”

The work with ANDRITZ represents Paloma’s first strategic partner for maintenance and service. “This is not something so traditional in our country,” Bedenik says. “The key for us lies in ANDRITZ’s expertise in specialization. Our core competence is the development and production of tissue. It is not in the maintenance and service of tissue machines. Their renovation of one of our important tissue machines showed their depth of expertise. It also showed our ability to manage a project with international team members and foreign experts. The project was a complete success.”

Paloma is confident it has found a reliable service partner in ANDRITZ. “They will work with us well into the future to optimize and continuously improve our production stages, which will improve the quality of our products,” Bedenik says.

RED LIQUOR. GREEN POWER.

Tambec calls it a “game changing investment.” The new ANDRITZ sulfite recovery boiler and turbine-generator improve production costs and environmental performance while providing steady, long-term revenue for green electricity. The CAD 273 million (EUR 185 million) project also permits a future capacity expansion of specialty cellulose production.

**ANDRITZ Yankee Service**

- Mechanical on-site services (grinding, coating, leakage repairs, nip calibration, doctor blade adjustment, etc.)
- Consultation (drying system, heat recovery, energy savings, runability, etc.)
- Troubleshooting (surface inspection, steam and condensate, automation, dewatering, chemicals, etc.)
- Inspections and measurements (pressure testing, OTR, finite element analysis, acoustic measurement for crack detection, etc.)

---

On-machine check of Yankee shell thickness.
The slogan for the Canadian forest products company Tembec is “Rooted in tomorrow.” This is an apt description of how a strong sense of history is blended with a forward-thinking strategy to find success in difficult markets.

To understand Tembec’s drive for success, travel back in time to 1973 in Temiscaming, Quebec, a town whose livelihood depended on the dispersed mill that was shut down as being unprofitable in 1972. The mill, owned by 41 individuals, was purchased by four individuals who teamed up with former employees of the mill, the residents of Temiscaming, and government authorities to purchase the shuttered mill. Against an investment of CAD 2.4 million (EUR 1.6 million), the company’s first-year after-tax income was CAD 9.3 million (EUR 6.3 million). A Canadian success story was launched.

The Tembec strategy has been to carve out a niche for the sulfite mill: tailor-made specialties involving dissolving pulps (ethers, acetates, nitrocellulose, and microcrystalline cellulose), chemicals (lignosulfonates), and coated commingled paper (microcrystalline cellulose, and microcrystalline cellulose), chemicals (lignosulfonates), and coated commingled paper (microcrystalline cellulose).

As Dottori explains, Temiscaming is actually a very complicated site from an energy perspective. “We have a board mill, a high-yield pulp mill, and a specialty cellulose mill here, with many swings in production,” he says. “We needed an extremely robust boiler to replace our old units that could handle our variability of liquor swings. We also needed certain fuel capabilities. The boiler had to be oversized by a certain factor. We wanted dual scrubbing capabilities (ammonia and/or caustics). Plus, we needed a flexible condensing turbine design to handle outages and shutdowns in a variety of ways.”

Green electricity project
Tembec’s new CAD 273 million green electricity facility at Temiscaming is now producing steam for mill processes and generating power that is delivering to the Provincial utility, Hydro-Québec, through a 25-year supply contract. The centerpiece is an ANDRITZ SulfitePower boiler and electrical turbine with a generating capacity of just over 60 MW. The boiler burns “red liquor,” which is a co-product of the ammonia-based sulfite manufacturing process at the mill.

The main drivers, according to Paul Cousineau, Corporate Manager of Major Projects (who stepped in to become Tembec’s Project Manager after the original project manager experienced health problems), were the age of existing boilers and the desire to reduce SO2 emissions considerably – plus the ability to create a steady stream of revenue from the power agreement with Hydro-Québec.

Efficiencies of the new ANDRITZ boiler improve manufacturing productivity and reduce costs. Once fully optimized, the new scrubber and environmental control equipment will reduce the mills’ SO2 emissions by 70%, which will be much appreciated by the local community.

Best available technology
ANDRITZ was selected to provide the engineering, the boiler itself, erection supervision (civil construction and erection were handled by Tembec), and commissioning services at Temiscaming.

“Sulfite mills are few and far between in Canada,” Cousineau says. “The last recovery boilers in North America for sulfite mills were installed in the late 1970s. ANDRITZ has done considerable work since then by installing sulfite boilers and chemical recovery units around the world. ANDRITZ has strongly promoted its design to the point that we believe it is the best available technology.”

ANDRITZ is unique in that it offers all three types of recovery boilers: black liquor (kraft), red liquor (sulfite), and sodium liquor (for example, sodium-containing effluents from the BCTMP process). “Our first sulfite boilers were installed in the 1950s,” explains Bernd Zuschin, ANDRITZ Project Manager, “so we have a long history and deep experience. We have continued to develop this technology and this is certainly recognized by our customers. For example, this is the first ammonium sulfite boiler we have ever built. Our deliveries up to this point have been for magnesium-based sulfite processes. We also delivered the world’s largest sulfite boiler and chemical recovery unit to Sappi Sappi in South Africa, started up in 2008.”

“We were looking for a highly flexible boiler to deal with the steam consumption swings at this site and not have our utilities constrain our pulp production processes,” Dottori explains. “ANDRITZ’s track record convinced us that they were the best supplier for this project. We were especially impressed with their capability in handling different and difficult fuels – even municipal solid waste, refuse-derived fuels, and various cooking liquors. We have two of their units at our sister mill in Tartas, France, which gave us a good reference.”

“Liquor incinerators”
The new boiler replaced three operating boilers and one boiler that had been shut down. As Cousineau explains, “Our three old recovery boilers were what I like to call ‘liquor incinerators’ since they were converted coal-fired boilers operating at low pressures and temperatures. They had reached the end of their useful life. Fouling was one of the biggest issues. This led to corrosion issues and made maintenance more intensive.”

Tembec began talks with then Austrian Energy & Environment (now ANDRITZ) in 2010 and sent out tenders the following year. “We began to talk in detail in 2011, and provided some budget estimates and calculations,” says Zuschin. “We signed the contract with Tembec in March 2012.”

ANDRITZ delivered all the boiler components to the site by mid-2013. “This was a relatively fast-track for delivery, especially considering the sea transports from Europe to Canada, but we made all of the milestones,” says Christoph Gruber, ANDRITZ Commissioning Manager. The boiler was started up early 2015.
Simplified operations and maintenance

Life for Tembec’s boiler operators is now simplified. “We now run two boilers – a high-pressure bark boiler which had a small 8 MW turbine, and the new ANDRITZ boiler,” says Trevor Turner, Head Operator. “With this project, we shut down the small turbine since it was only back-pressure and now have all the steam flowing through one high-efficiency turbine with a condensing unit.”

Fouling is considerably reduced with the ANDRITZ boiler. According to Michel Monet, Steam Plant Superintendent, the arrangement of the heat transfer surfaces in the Sulfitel Power boiler allows his operators to optimize temperatures in specific zones to reduce fouling and potential corrosion. “This, coupled with the horizontal configuration of the economizer and superheater, will hopefully help us extend the time between major outages,” he says.

About 78.5 t of wet liquor at 50% dry solids each hour, equating to 942 tds/d producing 222 t/h of high-pressure steam. Ammonium bisulfite is recovered in the economizer and superheater, will hope to match our best people.

“The entire steam plant team was involved in making this project a success,” says Marc Barrette, Mill Manager of the Specialty Cellulose mill. Barrette was Project Owner for the boiler project, responsible for commissioning and start-up. “Our operators and the commissioning team worked long hours on many consecutive days during the training and commissioning phases.”

Turn the page

“The project is over, the boiler is built,” Dottori says. “Now it is Operations’ job to turn the page and look forward to the next 30 years. That is how we are working with ANDRITZ – shifting from project mode to operating mode: maintaining, optimizing, and then looking at future opportunities.”

Dottori says the team made a lot of very good decisions in terms of equipment selection. “You can see that in the way that the mill is operating today,” he says. “Our digesters and the board machine are performing better than ever before.”

Interview with Júlio César Rodrigues da Cunha, Fibria’s Director of Engineering and Projects and Joel Starepravo, ANDRITZ Project Director

The second pulp production line at Fibria’s Horizonte mill near Três Lagoas will have a capacity of 1.95 million tonnes per year of bleached eucalyptus pulp. This will bring total production at the site to 3.05 million tonnes per year, making Horizonte one of the largest pulp plants in the world. Total investment in the second line is BRL 8.7 billion (EUR 2.4 billion). ANDRITZ is supplying all the process areas (woodyard, fiberline, pulp drying, chemical recovery, and power island) on an EPC basis. We spoke with the Project Directors from both Fibria and ANDRITZ to get a status report on how the project is progressing.

Even though this is the largest equipment in the world, I don’t have any doubts.

Júlio César Rodrigues da Cunha

Marc Barrette, Mill Manager of the Specialty Cellulose mill. Barrette was Project Owner for the boiler project, responsible for commissioning and start-up. “Our operators and the commissioning team worked long hours on many consecutive days during the training and commissioning phases.”

The second pulp production line at Fibria’s Horizonte mill near Três Lagoas will have a capacity of 1.95 million tonnes per year of bleached eucalyptus pulp. This will bring total production at the site to 3.05 million tonnes per year, making Horizonte one of the largest pulp plants in the world. Total investment in the second line is BRL 8.7 billion (EUR 2.4 billion). ANDRITZ is supplying all the process areas (woodyard, fiberline, pulp drying, chemical recovery, and power island) on an EPC basis. We spoke with the Project Directors from both Fibria and ANDRITZ to get a status report on how the project is progressing.