

Meeting Smurfit Kappa's Environmental and Sustainability Goals

Packaging giant Smurfit Kappa is extremely cautious and demanding when it comes to making sure sustainability goals are met in its operations, often going above and beyond when it comes to meeting environmental regulations. The company recently embarked on its biggest investment program ever – the Future Energy Project – at its Nettingsdorf mill in Austria. ANDRITZ was chosen to supply key technology in order to achieve its sustainability ambitions.

Smurfit Kappa's Nettingsdorf mill produces around 450,000 tpy of kraftliner for the central European market and is firmly focused on "high quality, efficient and low-cost production," according to Günter Leitgeb, Mill Manager, Smurfit Kappa Nettingsdorf.

The mill is also firmly focused on sustainability and environmental regulations as the site is situated

close to the city of Linz in Austria, the country's third largest city, as well as operating in an urban area in the town of Nettingsdorf. "Environmental regulations are very tight here," continues Leitgeb. "Even more so than normally found in the pulp and paper industry. Austria prides itself on being first-in-class when it comes to protection of the environment. Emissions and odorous gases in particular are closely regulated, especially at Nettingsdorf, as we operate right in the town."

As the environmental limitations in Austria have grown tighter, as well as operating with some aging equipment, Smurfit Kappa decided to implement the Future Energy Project at the mill to address not only the environmental concerns, but also to improve energy and production efficiencies. "The last major investment at the mill in the recovery boiler area was some time ago," says Leitgeb. "With the Future Energy Project, we wanted to install the very latest in technology to maximize efficiencies as well as reach our environmental goals."

As part of its investment at the mill, Smurfit Kappa chose ANDRITZ to supply a new HERB recovery boiler and Mechanical Vapor Recompression (MVR) plant to enhance its implementation of sustainability initiatives as well as increase efficiency and profitability.

"We chose ANDRITZ as we have a long history of working together at this mill and we were confident in the technology and expert know-how it could



ABOVE
AND
BELOW

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Günter Leitgeb
Mill Manager
Smurfit Kappa Nettingsdorf



→ provide for a project of this scale. When it came to the sales phase of this project, ANDRITZ experts were extremely flexible and easy to work with. They understood exactly what we needed from the start", says Leitgeb.

Henrik Wikstedt, Vice president, Recovery Boilers, ANDRITZ, says, "When the project was first being talked about, the important factors were that Smurfit Kappa needed high energy efficiency and low emissions for the recovery boiler and significantly lower steam use for evaporation. The MVR process is extremely energy effective vs. multiple effect evaporation plants.

"ANDRITZ had already been involved quite heavily at the mill in the recovery boiler and evaporation areas, so we already had a lot of knowledge about the details of the operation. We were ready to help the customer as and when they needed it. Also, we were very familiar with regulations and standards, meaning the customer could be confident that the project could go ahead with ANDRITZ strictly adhering to any specific requirements. And in this case, the standards were set very high by Smurfit Kappa."



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OUT WITH THE OLD, IN WITH THE NEW – IN JUST ONE DAY

Contracts were signed in the spring of 2018 and the project commenced with the delivery of the pre-evaporation units. The installation of the units was completed by November 2018 and commissioning and take-over was achieved in April 2019. The recovery boiler project proceeded immediately after the installation of the pre-evaporation plant, the hydrotest was completed by late December 2019, with take-over taking place at the end of July 2020.

"This was an extremely challenging project for a number of reasons," says Wikstedt. "The mill layout was really tight, with the recovery boiler being constructed on the site of the former lime kiln. There were also challenges with the pre-evaporation unit that involved a complex layout in an extremely narrow place.

"Added to this were Austrian rules relating to the use of labor and the, of course, there was COVID-19, which came along right in the middle of the main part of the project."

Despite all the challenges, the project started on time. The new recovery boiler took over from the old one and was running at nominal capacity after just one day. "This project was carried out on another level, especially when it came to safety," says Leitgeb. "And the start-up was brilliant. The project manager and team from ANDRITZ were completely focused and always pushing to make sure all requirements were met and the timeline was followed.

"We stopped the mill for one day and the next day we had full production. There was such a fast ramp-up after the start-up; I could even say the recovery boiler was outperforming. We did all this during normal operation; it really was a case of out with the old and in with the new and up and running again – in just one day."

"We were very pleased; the commissioning went well and the start-up and ramp-up to full production went exceedingly well", adds Wikstedt.

Leitgeb comments that now all capacity numbers agreed on with ANDRITZ have been fulfilled, he says, "The expectations were really high with this project and the senior management at Smurfit Kappa have followed progress very closely. The recovery boiler is now running smoothly 99% of the time with the major difference being that it's not a bottleneck anymore.

"When emissions, we are outperforming, the energy efficiency is brilliant, and the chemical recovery is much better than before. All in all our expectations have been met, despite the challenges."

CONTACT
Henrik Wikstedt
henrik.wikstedt@andritz.com

THE LATEST TECHNOLOGY FOR RECOVERY BOILERS

Nettingsdorf is no stranger to the implementation of the latest technology. The mill has already some of the newest technology from ANDRITZ on its fiberline in operation, including a number of the world's first installations.

The new recovery boiler delivered to Nettingsdorf comes complete with some of the latest advanced autonomous technology developed by ANDRITZ, including a Smelt Spout Robot, sootblowing control with a Metris HEWI Weight Indication, a Metris Water Leakage Advisor (WLA) system, and a process simulator.

Michael Strach, Pulp Mill Manager, Smurfit Kappa Nettingsdorf, says of the Smelt Spout Robot installed on the smelt deck of the recovery boiler, "This is a very important step for us at the mill in terms of safety as the smelt deck is one of the most dangerous places to work in at the mill.

"We have been really surprised at how effective the robot is; we were expecting teething troubles, but apart from a maintenance learning curve it has been very effective right from the beginning. It has now made the smelt deck a lot safer for our mill personnel."

Strach also comments on the process simulator that was supplied alongside the new recovery boiler, "The simulator is perfect for us as we can train our personnel how to run and operate the boiler. We can simulate different scenarios including dealing with tricky situations learning what to do, and importantly what not to do when these occur. We use the simulator a lot to see how the boiler reacts to various events; it's very useful for gaining experience of boiler operation."

The Metris WLA system is the first of its kind supplied to a pulp mill, as it comes with the new feature of machine learning. The system was developed in close cooperation between ANDRITZ and the Nettingsdorf Mill. Walter Marchgraber, Pulp Mill Manager, Smurfit Kappa Nettingsdorf says, "The Metris WLA came as a result of close collaboration between Nettingsdorf recovery boiler management and ANDRITZ. Safety is of utmost importance to us at the mill, so to have a system that warns us of possible water leakage is a great tool to have for our operators.

"The new system will alert operators to a possible leak, enabling them to take action and therefore prevent the chance of an explosion in the recovery boiler."



Michael Strach and Walter Marchgraber
front of the Smelt Spout Robot installed
at Smurfit Kappa Nettingsdorf