

Change of venue to Rizhao

APRIL SSYMB, the leading pulp producer in China, operates one of the world's largest pulping lines in Rizhao, Shandong Province. But the original location was set for Indonesia. ANDRITZ's flexibility in design and project management allowed for a smooth transition to the new location. The LimeLine technology for white liquor production is perfectly matched to APRIL's targets for high production and environmental safety.

APRIL's mill in Rizhao, Shandong Province, was built under the slogan People, Planet, Profit. Accordingly, the mill meets international standards for safety, environmental protection, and high production. This is where ANDRITZ stepped in, when APRIL needed a white liquor plant that would meet very high international standards for its new pulping line.

APRIL's original thinking was to build the mill in Kerinci in Sumatra. But after planning and analyses, it was decided to change the location to Rizhao where another pulp mill was already located. Fortunately, the design of the ANDRITZ LimeLine allows for flexibility. So, despite the unexpected challenges in changing the location to a new site in a new country – with new requirements for the civil/structural, logistics, and some economic factors – the results have been outstanding.

Limited waste

APRIL SSYMB is a joint venture of the well-known Asia Pacific Resources International Ltd. (APRIL) and SSYMB. The JV started operation of the largest pulp mill in China in 2010, and one of the largest in the world (1 million t/a of bleached kraft market pulp).

Originally, the project did not have enough capacity for PL11's white liquor plant. "As

a consequence, we had to purchase burnt lime from other suppliers," says Huang Wen Hai, General Manager. "At the same time, we were sending our lime mud to landfill."

The Chinese government now limits the amount of waste that a mill can produce, so ANDRITZ was asked to design a recausticizing system and lime kiln that would support the production of PL11, the new pulp line. "This would eliminate our

need for purchased lime and also reduce our solid waste," Huang says.

Since China has a shortage of raw materials, the government imposes a 10% tax for pulp export. So, according to Huang, APRIL SSYMB sells its Rizhao-produced pulp to the domestic market. About 40% of design production is sold to Shandong Province paper and tissue producers, while the rest is sold throughout China. Fiber sources are eucalyptus and acacia.



"ANDRITZ has a vast portfolio of experience and expertise in the pulp and paper industry."

Huang Wen Hai, General Manager at APRIL SSYMB



▲ The LimeLine technology for white liquor production is perfectly matched to APRIL's targets for high production and environmental safety.

"We were the first company to introduce a white liquor disc filter in a mixed hardwood process," says Keijo Savolainen, Vice President in ANDRITZ's Fiber and Chemical Division. "With the first delivery we were able to prove that the technology can be applied to tropical pulp mills, and since then it has become widely used by all mills."

ANDRITZ recommended

Huang, a veteran of 26 years in the industry, has been familiar with ANDRITZ equipment since the mid-1980s. "We are looking for quality and ease of maintenance from our suppliers," he says. "We expect longer service intervals from the equipment, made possible with a good preventive maintenance program. We also require good service and technical support. Our Kerinci mill in Indonesia recommended ANDRITZ for the white liquor plant because of the good cooperation and local support."

APRIL placed the order for the new white liquor plant in October 2006. ANDRITZ's delivery included two LimeGreen filters (green liquor filtration), two LimeWhite filters (white liquor filtration), two LimeDry

(lime mud disc filters) for washing and drying, and two LMD lime kilns. Erection started in the summer of 2008 and the plant was started up in June 2010.

Cost saving is crucial

One of the critical factors in selecting ANDRITZ technology, according to Huang, was the need for utmost reliability. "Our target is stable production," he says, "and we cannot afford to have a new installation that results in unexpected downtime. Not only is downtime costly financially, it is very frustrating to take a system up and down. That is the reason why the equipment from ANDRITZ had to be top of the line."

Huang notes that one of APRIL's strengths is cost savings. As evidence, he points to the efficient transfer of raw materials from port to mill (by conveyor) and the wood chipping centers that ensure there is no shortage of fibers. For its own part, Huang explains that Rizhao works hard to ensure certain raw material specifications, and is selective in the procurement of make-up chemicals, fuel oils, etc. that are utilized in the kiln. "We do this in order to minimize impurities and to maximize the performance of the equipment," Huang says.



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Dregs, separated with dregs centrifuge. Clean green liquor is mixed with burnt lime from the lime kiln to make white liquor. ▼



Faced with strict regulations by the government regarding best available technology (BAT), Huang and his team were comfortable with ANDRITZ. "I feel comfortable, because ANDRITZ is a reliable supplier and partner. With ANDRITZ onboard, we can confidently meet, and in fact exceed any environmental standards," Huang says.

One of the near-term challenges at the mill is getting APRIL employees familiar with all the new technologies. "With the support of Juha Riihelä of ANDRITZ who is residing here now, and his team, we are quickly transferring the knowledge from ANDRITZ to APRIL," Huang says.

Operations run by sign language

According to Huang, an ANDRITZ strength is that it has a vast portfolio of expertise and skilled personnel in the pulp and paper business. "I hope as ANDRITZ grows in China that they develop these highly skilled experts who also have good command of the Chinese language and are close to their customers," he says.

Christianus Yong, RC/LK Superintendent for APRIL, says that his experience of working with ANDRITZ truly highlights the team effort in solving all the minor issues that normally surface during a project. "ANDRITZ is always very responsive to our questions and provides optimal solutions when needed," Yong says. "While the language difficulties work on both sides, we manage to run our operations with ges-



"Communications is the fundamental element in establishing relationships"

Juha Riihelä, ANDRITZ Project Engineer

Xu Wei, ANDRITZ Project Coordinator

tures and sign language, which is rather remarkable."

According to Yong, the guaranteed production from the LimeLine plant is 18,000 m³ per day, which makes this plant certainly one of the largest in the world. "These values are easily achieved," he says. "In terms of performance, we are very pleased with the ANDRITZ PL12 project and equipment."

"The LimeGreen filters are producing very high quality green liquor with very low impurities," Riihelä says. "Suspended solids are less than 20 mg/l. The two-stage dregs centrifuges do not require any lime input. The lime circulation is opened from the electrostatic precipitator, which is the most efficient and environmentally effective solution. The LimeWhite filters are running at less than 10 mg/l, which is very good. Our lime kilns have not encountered a single mechanical glitch since start-up."

Learning together with the customer

Savolainen of ANDRITZ points out that since starting the relationship with the APRIL Group in early 1990's, ANDRITZ White Liquor Plant operations have grown together with the APRIL Group. "ANDRITZ

is developing its LimeLine to meet the highest environmental standards," he says. "Our way of working together has improved. Even the change of location of this plant to a different country in the middle of the project was a challenge we were able to meet."

Originally the challenge was to build a big plant with a short delivery time. With the change of location, the challenge changed focus. "For instance, the buildings in Rizhao required walls," Savolainen says. "These were not needed at the original location. So, there was much less space at our disposal in Rizhao for piping. The extended erection, commissioning, and start-up phases impacted the economics of the project and required some new commercial negotiations, but everything was worked out.

"At the end of the day, we understand that the reliable continuous operation of the plant is vital for a pulp mill. When developing new equipment and processes, we keep that in mind."



▲ ANDRITZ LimeKlin



LimeGreen filters for green liquor (formerly known as X-filters). ▼