SUCCESS STORY
S. Kijchai, Thailand

PANELBOARD

RUBBER WOOD AS SOURCE OF HIGH-QUALITY FIBER

PREMIUM MDF FROM PRESSURIZED REFINING

ANDRITZ

ENGINEERED SUCCESS

Premium MDF from pressurized refining

The S. Kijchai Group, based in Rayong, Thailand, entered the wood products business in 1987. Founded by the local entrepreneur Vichien Saenwongkij, the company's first venture was a sawmill, followed by a particleboard plant and furniture factories. The MDF (Medium-Density Fiberboard) facility was inaugurated with a pressurized refining system from ANDRITZ.

In Rayong, Thailand, S. Kijchai MDF Co. Ltd. and its sister companies are commited to maximizing the productive value of rubber trees. This is demonstrated through 11 years of latex harvesting by local farmers and every part of the tree being used to make MDF, plywood, furniture, and even energy from the waste products.

Since late 2012, S. Kijchai has been operating an ANDRITZ pressurized refining system to support production operations delivering 225,000 m^3 of MDF board per year. Supot Massayamas, General Manager, says "Our medium-density fiberboard is highly sought after by Asian customers. And, it is a strategic raw material for our own furniture manufacturing. We consistently achieve uniformity and smoothness to the touch."

Massayamas explains that the pressurized refining system from ANDRITZ is excellent at ensuring that the chips from the rubber trees are refined to exacting requirements to produce a wide range of premium MDF grades. "Best of all, we have high efficiency, high availability, and the refiner is very energy-efficient," he says.

Chips from rubber trees are ideal for high-quality MDF.

> "All fiber made from the refiner is raw material for MDF production. By controlling the input and production process, we control the quality and cost."
>
> **SUPOT MASSAYAMAS**
> General Manager
> S. Kijchai, MDF Co. Ltd.

THE ANDRITZ PRESSURIZED REFINING SYSTEM

Using wood chips made from the branches of rubber trees, the pressurized refining process at S. Kijchai MDF begins when chips are fed into the pre-steaming bin. A vibrating discharger ensures a continuous flow of the heated chips, which have now been softened, into the plug screw feeder.

The plug screw feeder transports the raw material to a vertical digester, compressing it for safety and performance reasons into a 'plug' to form a seal between the atmospheric conditions in the vibrating discharger and the pressurized digester. The feeder, which is custom-tailored for each application by ANDRITZ, also stabilizes the moisture content of the material. In addition to moisture, such factors as bulk density and capacity are closely controlled to achieve the maximum possible performance on a consistent basis. The ANDRITZ innovation of enabling hydraulic expansion for the plug screw feeder and vertical digester compensates for the physical changes that

Rubber wood is an excellent furnish for panelboard production.

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> General Manager
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(Right) Vichien Saengwongkij, owner of the S. Kijchai Group, and Supot Massayamas, General Manager at S. Kijchai.

ANDRITZ S2070 high-consistency refiner.

“The production process is flexible. We can produce MDF thicknesses from 2.5 mm up to 32 mm.”

SUPOT MASSAYAMAS
General Manager
S. Kijchai, MDF Co. Ltd.

“We have developed a new generation of pressurized refining systems that can be easily configured to achieve specific end-product qualities for our customers.”

MICHAEL FRINT
Technology Director
ANDRITZ Panelboard

occur in the digester when it operates a high temperature. This minimizes structural stresses, contributing to the long life of the unit.

According to Massayamas, “It is important not to overcook the chips in the digester because it is a waste of energy and it makes the fiber bundles look too dark - and too heavily processed. The physical appearance of our board is important. What happens in the ANDRITZ digester, and then in the refiner, is very important to the final look of our product“.

After digesting, the fiber material is discharged from the vessel by a discharger system, which controls the flow of feedstock to the pressurized refiner. In the next step, another innovation – the C (constant)-feeder, provides smoohth material feeding, no matter whether capacity is high or low. The refiner itself is fed by a ribbon feeder screw, which operates at high constant speed and ensures that steam from the refining process flows back to the digester via the ribbon feeder and steam equalization pipe.

EXACT FIBER PROPERTIES, LOWER ENERGY CONSUMPTION

According to Michael Frint, Technology Director, ANDRITZ Panelboard, “We have developed a new generation of pressurized refining systems that can be easily configured to achieve specific end-product qualities for a customer. Due to the high dewatering efficiency at the plug screw, water or condensate is removed before the pressurized part of the process, resulting in less energy
being needed for drying. Importantly, the feeding system ensures highly stable operation over S. Kijchai’s complete production range and under all process conditions.”

Massayamas adds “the ANDRITZ system is practical and proven, but has a very advanced design. We benefit from consistent-quality fiber, smooth operations, and energy efficiency, and the maintenance requirements are very low. Plus, we work with a consistently friendly and responsive ANDRITZ team. That’s why we achieved such a fast start-up. ANDRITZ technical support gives us the foundation to further optimize.”

ROUTINE MAINTENANCE MADE EASY

“With this system design, maintenance takes half the time of competitors’ refiners,“ Massayamas says. “When we change the refiner plates, we can do it quickly, thus saving us time.”

THE END PRODUCTS

Once the ANDRITZ line has prepared and refined the fiber, it is ready to be made into medium-density

In addition to control from the DCS system, observations are made and recorded at many stages of the process

Fiber is refined according to exacting specifications.

board. Formed into panelboard with thicknesses ranging from 2.5 mm to 32 mm, the board is dried. It takes about 36 hours for the heat to dissipate. Massayamas says, "We wait until the mechanical thickness is stable. Then we sand the board, which is the final step to achieve a smooth, good-quality product. Smooth skin matters a lot."

INSTALLATION FROM APRIL TO NOVEMBER 2012

Erection of the new line began just after the Thai New Year in 2012 (April), and the equipment was ready for a trial run in November. Massayamas remarks, "By January 2013, we were in full production. Many sizes and thicknesses were tested, and all performed well."

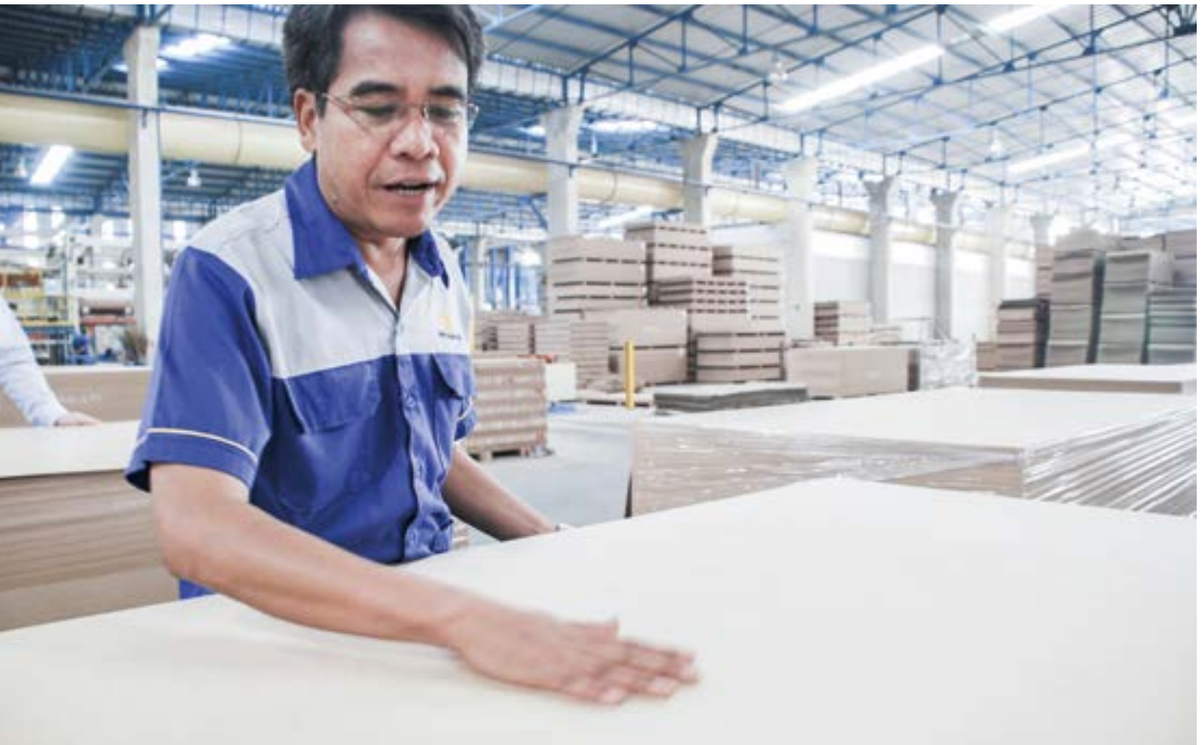
Frint adds, "We fully support our customers from the early design stages, through engineering, to delivery, and beyond."

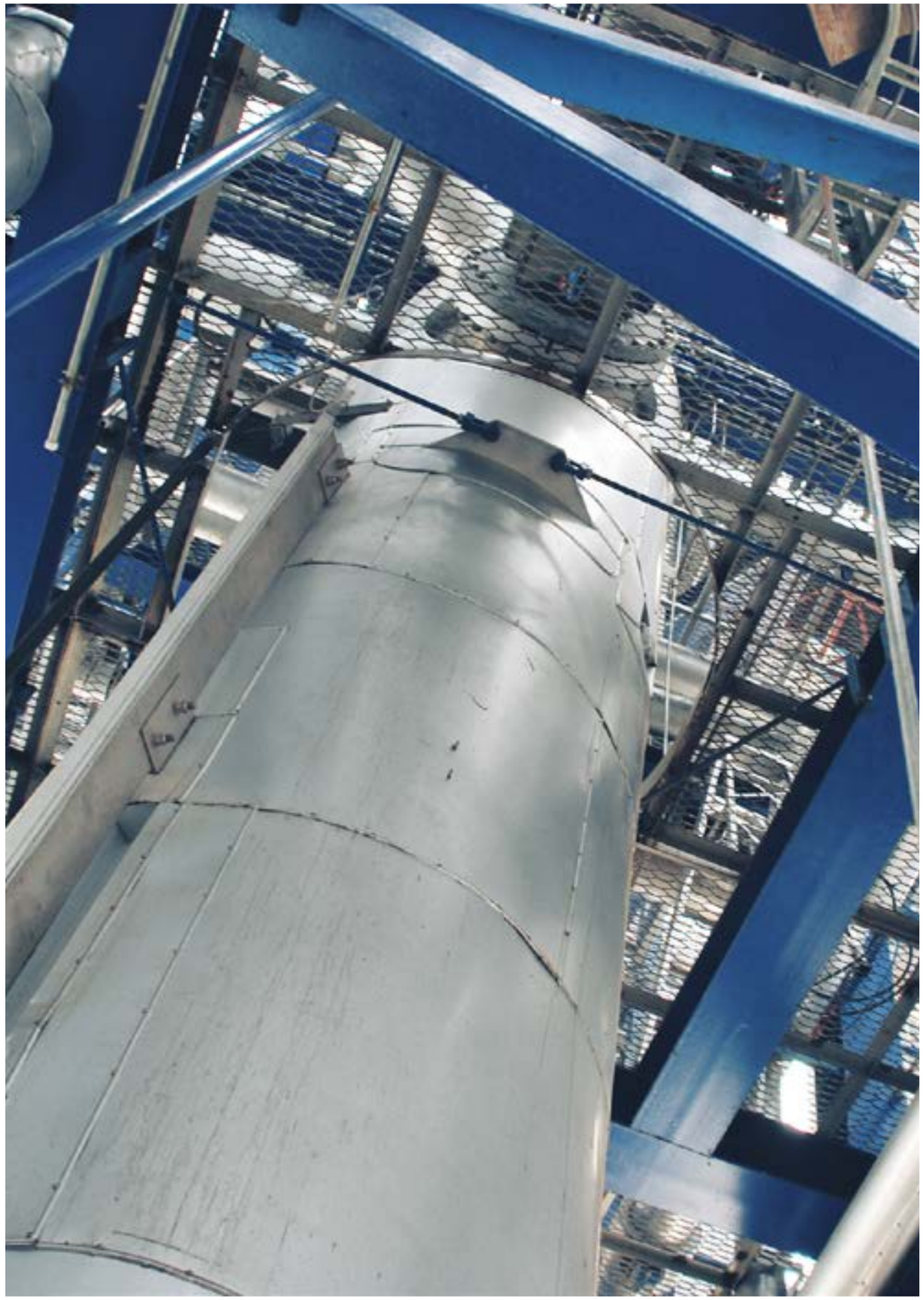
"We kept our promise to provide the best fiber for the customers' requirements and also meet their needs after installation."

MICHAEL FRINT
Technology Director
ANDRITZ Panelboard

S. Kijchai headquarters in Rayong, Thailand

Smooth and light in color, S. Kijchai's MDF is highly regarded by customers





FULL-RANGE CAPABILITIES FROM ANDRITZ PANELBOARD

ANDRITZ Panelboard supplies innovative single equipment and complete front-end packages, ranging from debarking, chipping and screening, to chip handling, as well as from chip washing to pressurized refining systems, including waste water evaporation. Our machines process any species of wood or annual fibers, such as bagasse, bamboo or straw. Extensive system and process know-how for panelboard fiber preparation is the technological basis of our solution, which also comprises responsive service, replacement parts, and upgrades to existing machines. Low electrical and thermal energy consumption with best performance is the driving factor for the design of each individual machine in the system and the process.

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