

SUCCESS STORY

Pavatex, France



PANELBOARD

HIGH-QUALITY INSULATION BOARD

EXTREME CONDITIONS OUT -
SUPERIOR FIBERS IN

ANDRITZ

ENGINEERED SUCCESS

Pavatex insulation board keeps extreme conditions out

In April of 2013, Swiss-based Pavatex SA started up a new 50,000 tonne plant in Golbey, France, producing high-quality insulation board made from wood fiber. As the market leader, Pavatex's investment of 60 MEUR in the plant helps secure its position in the market for natural insulation materials.

The essential technologies for the Golbey plant are a continuous dry process, and a pressurized refining system from ANDRITZ. In addition, ANDRITZ supplied the chip handling system for feeding the raw material. Most of the chips come from the woodyard of the Norske Skog (NSI) paper mill on the same site, and some chips are purchased from other woodyards. The symbiosis with the NSI mill continues as the paper mill supplies steam and electricity for the Pavatex plant, as well as treating its wastewater.

"Our insulation board is highly sought after by European customers. Since extreme heat, cold, noise, and fire abatement are designed into our products, very special manufacturing equipment, know-how, and control are essential to our success," says Herbert Christen, Industrial Director with Pavatex. Christen explains how the pressurized refining system from ANDRITZ ensures that the spruce chips are refined to exacting requirements to produce a wide range of premium insulation board

grades. "We have high efficiency, high availability, and the refiner is very energy-efficient," he says. "We don't have to think about the refiner because it is so dependable. This allows us to focus on other parts of our process." Volker Brombacher, Head of Pavatex's Technology Center, continues, "Making a wide range of thicknesses with very specific insulating functions in mind, such as heat, cold, sound, and even fire, requires slightly different refining for each batch of products we run."

"Small adjustments programmed into the ANDRITZ system allow for subtle differences in the output of refined fiber," Christen adds. "Operators tell us that the refining system is not where they spend time, because it works continuously without any surprises."

"Our pressurized refining system is configured to achieve very specific end-product qualities for Pavatex," says Gregory Stamey, Project Manager



The six-day capacity chip handling and storage system from ANDRITZ includes chip conveying, chip receiving pocket, chip storage, reclaiming and screening. A huge woodyard at Norske Skog next door provides essential security for Pavatex's steady production flow.

"Very special manufacturing equipment, know-how and control are essential to our success."

HERBERT CHRISTEN

Industrial Director, Pavatex

with ANDRITZ Panelbaord. "It is also very energy-efficient as the plug screw removes water or condensate before the pressurized part of the process, requiring less drying energy. Importantly, the feed system ensures highly stable operation across Pavatex's complete production range and under all process conditions." Alan Wollinger, Panelboard Sales Manager with ANDRITZ, adds, "Once Pavatex selected us, they gained not only the benefits of our advanced equipment technologies, but also support during the conceptual stages, engineering, delivery, and fine tuning."



Alan Wollinger with Gregory Stamey from ANDRITZ in front of the Pavatex plant in Golbey, France.

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VOLKER BROMBACHER

Head of the Pavatex's Technology Center

Herbert Christen (left) and Volker Brombacher from Pavatex. Wood-fiber insulation products are ideal for fire abatement and sound abatement. They are also valuable for insulation against heat and cold.



CHIPS FROM NORSKE SKOG

A stream of chips from the huge woodyard next door at the Norske Skog pulp and paper mill is supplied to Pavatex. ANDRITZ designed and delivered the systems for chip conveying, the receiving pocket, storage, reclaiming, and screening. Christen points out that all the fiber going into his plant is virgin, but Pavatex also recovers fiber from waste, including dust collected in a de-dusting system.

FIBER FIRST

The heart of the ANDRITZ supply is the pressurized refiner, which has a capacity of about 7 bdmt/h and ensures low chip moisture after the plug screw feeder. Specific energy consumption for refining is reduced to 100 kWh/d, depending on the final product. "Fiber quality comes first," says Brombacher, "We like to have unique fibers with an exact length. In addition, we want to eliminate fines or dust. By carefully refining and handling the fiber, the mechanical properties of the finished board are much better." Christen also points out that less glue is needed if the fiber has the ideal properties from refining, and this also saves money.

Alexander Teller, ANDRITZ start-up engineer, played an important role in the use of both low-pressure and high-pressure steam, which reduces energy costs.



ENERGY CONSUMPTION MINIMIZED

Energy efficiency in the refining process is critical, as 50% of the electrical energy consumed by the Golbey plant is attributed to the refiner. According to Christen, "This is why we invested in the ANDRITZ system. Not only is the unit mechanically stable, it has technology features to minimize energy consumption. While refining is energy-intensive, we could consume a lot more to achieve the same production with alternative systems."

A novel means of saving energy that Pavatex Golbey uses is to run a double steam system, using both low-pressure and high-pressure steam. Pavatex achieves the ideal steam pressure by blending the two sources. "Since low-pressure steam costs 70 to 75% less than high-pressure steam, why not use it?" Christen asks. "With ANDRITZ's help, we developed an efficient way of blending the two steam sources. It was a little challenging to get this system installed and working, but if we can reduce energy consumption while maintaining product quality, will make the commitment."

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Industrial Director, Pavatex



- A** Final product produced in the Golbey plant.
- B** Every batch is tested to determine strength and various other properties.



High-quality fibers for insulation board.

"We are the low-cost, high-value producer. It takes a lot of effort to maintain this advantage."

VOLKER BROMBACHER

Head of the Pavatex Technology Center

Christen underlines the relative importance of energy costs in the plant's overall budget. "Wood has a reasonable market price for the region," he says. "Workers' salaries are not what make or break our costs. We are working hard to reduce the € 3.5 million in energy costs each year." Looking ahead, an important focus is saving glue costs, which will be accomplished by handling two types of glue separately, creating Pavatex's own formulations.

MULTIPLE SYNERGIES WITH NORSKE SKOG NEXT DOOR

The nearby location of NSI's largest newsprint mill in Europe creates significant advantages concerning the use of wood supply, steam, electrical energy and water effluent. Norske Skog supplies Pavatex with steam and electricity and re-uses mill effluent. Pavatex has innovated a system to collect its waste water from the refining process.

The water squeezed out in the plug screw feeder is cleaned in a hydro screen before being collected in the collecting tank. This cleaned water is then reused to flush out the compression housing of the plug screw feeder. ANDRITZ worked closely with the Pavatex team to optimize the system.

PROOF IS HAPPENING NOW

Christen comments that Pavatex Golbey's 50,000 tonne production output is a competitive advantage over others producing between 35,000 and 40,000 tonnes per year. "It does not require any more personnel to reach this higher production level." Brombacher adds, "We are the low-cost, high-value producer. It takes a lot of effort to maintain this advantage." "Running in the fifth month now, we are seeing very positive results," Christen says. "But we will probably still need another six months to achieve the productivity that we

believe is possible. We are well on the way to setting a new standard for our industry."

THE ANDRITZ PRESSURIZED REFINING SYSTEM

Using wood chips made from local spruce, the pressurized refining process at Pavatex, Golbey, begins when chips are fed into the pre-steaming bin. A vibrating discharger ensures a continuous flow of the heated and softened chips into the plug screw feeder. The plug screw feeder transports the raw material to a vertical digester, compressing it into a "plug" to form a seal for safety and performance purposes between the

A RANGE OF HIGH-QUALITY FIBERS ARE PRODUCED, DEPENDING ON THE PAVATEX END PRODUCT:

- 400 m³ l/h chip conveying
- 330 m³ l/h chip receiving pocket
- 80 m³ l/h chip storing and reclaiming
- 80 m³ l/h chip screening
- 7 bdmt/h refining

PAVAFRANCE, GOLBEY - EFFICIENT AND ECO-FRIENDLY FIBER PRODUCTION

- Energy saving
- Mixing high-pressure steam with recycled low-pressure steam
- Maximum dewatering at the plug screw feeder
- Waste water reduction
- Recycling waste water for flushing out the plug screw feeder
- Planning and design of the woodyard
- Designed layout of the woodyard



Herbert Christen, Pavatex, checking the quality of wood fiber insulation at Pavatex.

atmospheric conditions in the vibrating discharger and the pressurized digester.

The feeder stabilizes the moisture content of the material. In addition to moisture, factors such as bulk density and capacity are closely controlled to achieve the highest possible performance on a consistent basis. 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.

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ANDRITZ 44"-1CP pressurized refining system at the Golbey plant.





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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