PulpEye FIBER PROPERTIES ANALYZER

Fiber wall thickness module

ANDRITZ

Fiber wall thickness module

Fiber wall thickness – a powerful tool to minimize variability in pulp quality

Fibers have varying strength qualities. Processing can destroy the fiber integrity of thinner-walled fibers, thus threatening the quality of paper and board. Knowing the thickness of the fiber wall allows more processing control to achieve optimal paper and board strength properties.

Data from the PulpEye fiber wall thickness (FWT) module can be used for raw material control, fractionation, product development or quality assurance certification for customers. Raw material suppliers, manufacturers of market pulp, paper and board, as well as R&D departments, universities, and institutes can all benefit from using the PulpEye Fiber Properties Analyzer's FWT module.

RAW MATERIAL CONTROL

Wood chip: Quality and mixtures of different wood species can vary from supplier to supplier. By measuring fiber wall thickness, the results can be used to maintain a more even supply of wood chip.

Market pulp: Purchasing more uniform pulp grades helps achieve the desired paper and board properties. In one case, three eucalyptus market pulps were tested with conventional methods and with the fiber wall thicnkess test. Unlike conventional methods, the PulpEye Fiber Properties Analyzer FWT module was able to effectively detect differences in fiber properties, as illustrated in Figure 3.

PULP REFINING CONTROL

The PulpEye Fiber Properties Analyzer FWT module can provide valuable information when deciding refining strategies to produce the best output quality.

PULP FRACTIONATION CONTROL

The PulpEye Fiber Properties Analyzer FWT module provides data that confirms the results of fractionation based on fiber dimensions.

PRODUCT DEVELOPMENT CONTROL

The PulpEye Fiber Properties Analyzer FWT module is a useful tool in many product development projects where the correlation between paper properties and fiber mixture is important.

CUSTOMER QUALITY CONTROL CERTIFICATION

PulpEye FWT module provides strength data for quality certifications for pulp customers.

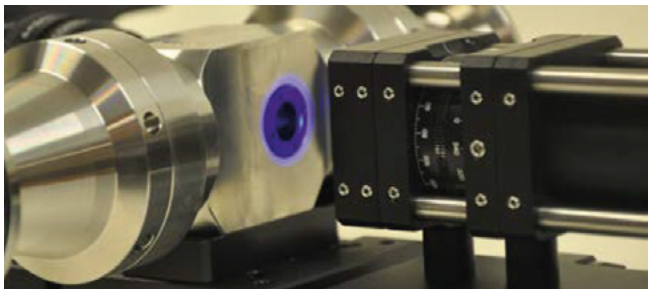


Figure 1. The measurement cell for the FWT module.

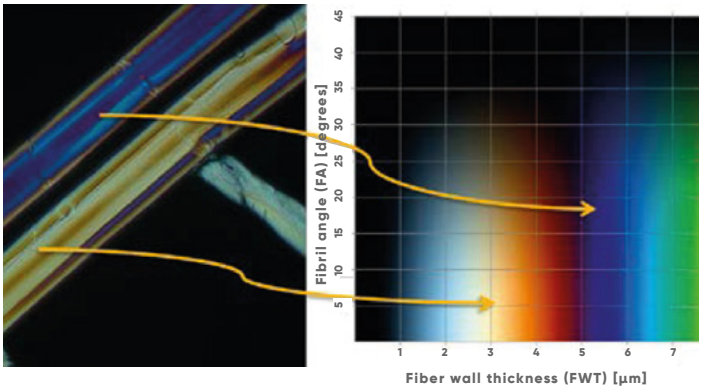


Figure 2. The fiber wall thickness corresponds to a certain color.

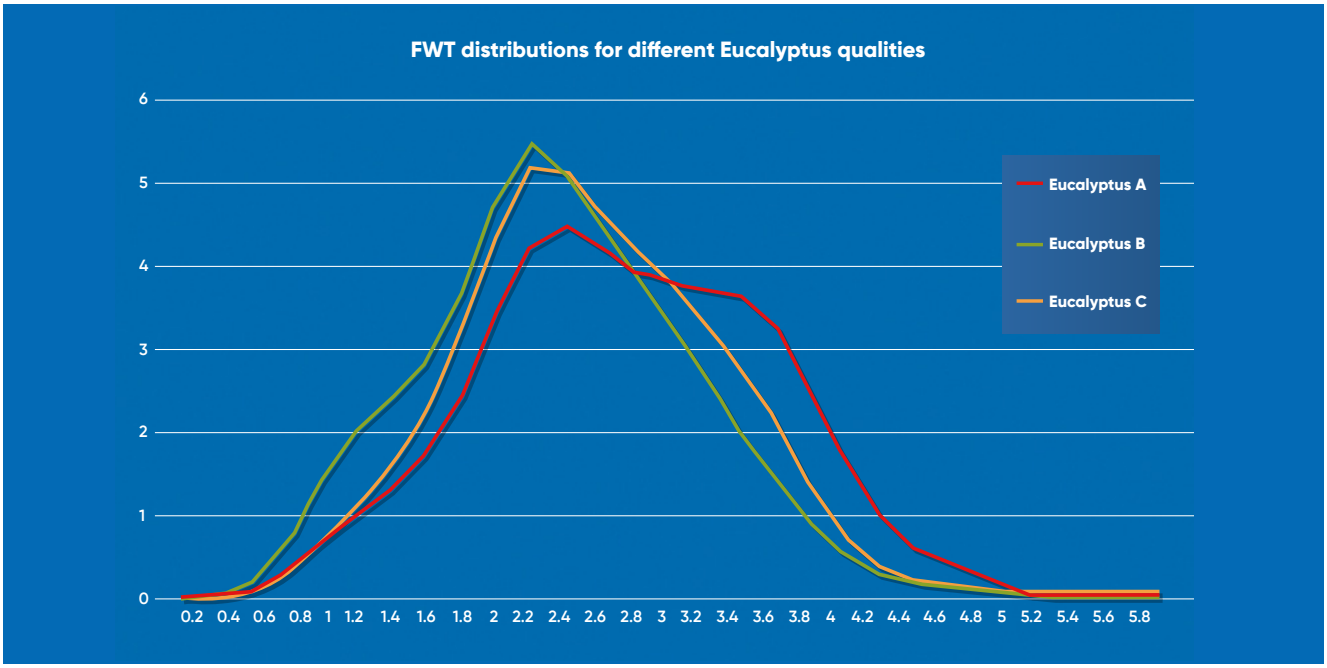


Figure 3. The FWT module can separate different eucalyptus pulps from each other.

PulpEye FWT MODULE

When combined with fiber length data from the PulpEye Fiber Properties Analyzer unit, data from the FWT module will enable companies to accurately estimate critical end-use properties in real time. This includes refined pulp tensile strength properties that are typically costly and time-consuming to measure, and are key elements of pulp quality for pulp customers.

OPERATION

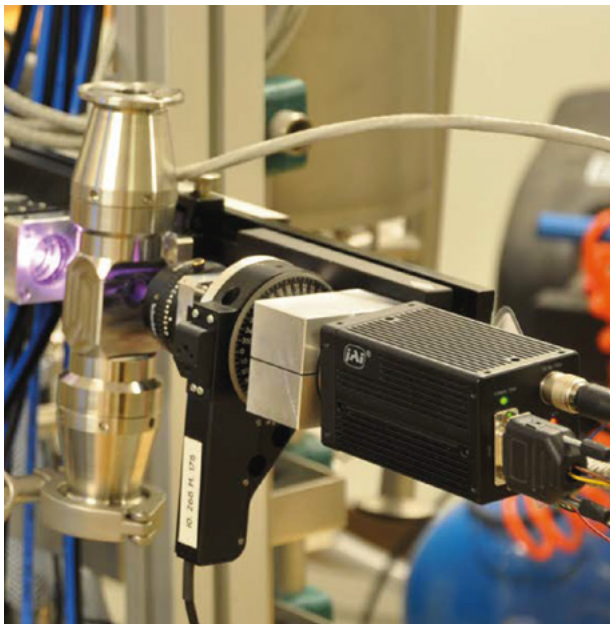
The FWT equipment is integrated into the PulpEye Fiber Properties Analyzer as a separate module, and measurements are triggered from the PulpEye Fiber Properties Analyzer user interface. The PulpEye fiber and shive are required.

OUTPUT

- Fiber wall thickness distribution
- Fiber width distribution
- Average fiber wall thickness
- Average fiber width
- Average cross-sectional area
- Calculated coarseness value
- Size matrix with number of vessels per gram of pulp

PARTS

- Optical unit including camera, RGB-LEDs, optics, rotation stage and cuvette
- Electronic box unit including computer, LED-controller, stage-controller, switch and 24/12 VDC converter
- All parts are mounted into the PulpEye Fiber Properties Analyzer base unit



The complete optics mounted in a PulpEye Fiber Properties Analyzer cabinet.

GET AN OVERVIEW
PulpEye Fiber
Properties Analyzer

CONTACT US FOR MORE INFORMATION

Advancing autonomous operations is our vision and is becoming an integral part of industrial processes. ANDRITZ is at the forefront of this transformation, leveraging digital innovations along with deep operational and technical expertise to improve process efficiency, quality management, and production reliability and availability.

We focus on developing autonomous pulp mills and process optimization, to support efficient and sustainable operations by combining automation, electrification, intelligent instrumentation, and digitalization to create measurable value throughout the full life cycle and the entire value stream.

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