



PulpEye FIBER PROPERTIES ANALYZER

Crill measurement



ANDRITZ

Calculate pulp strength properties online by Crill measurement

Crill measurement during pulp refinement helps understand strength development and identify possible energy savings.

CRILL MEASUREMENT MODULE FOR CALCULATING STRENGTH PROPERTIES ONLINE

Research studies at Innventia, part of RISE Research Institutes of Sweden, have shown that Crill is the single variable having the strongest connection to paper or board strength. The more Crill there are on and around the fibers, the stronger the paper or board will be. By measuring the amount of Crill it is possible to pre-calculate the strength of paper and board and hence define the refining needed to optimize the amount of Crill. The Crill measurement module can measure total, free and attached Crill on the fiber online. The technology is also used on MFC/Nano applications.

CONTINUOUS CALCULATION OF STRENGTH PROPERTIES

Strength properties are continuously calculated and presented. Less manhours required for lab work.

RUN PROCESS CLOSER TO SPECIFICATIONS

Calculated values available in Distributed Control System (DCS).

ENERGY SAVINGS AND MORE EVEN QUALITY CONTRIBUTES TO BETTER RETURN OF INVESTMENT (ROI)

Energy savings are achieved as pulps are produced closer to quality targets.

SUITABLE FOR ANY KIND OF PULP

Crill measurement is suitable for mechanical pulp as well as for chemical pulp.

ANALYSIS RESULTS ARE PRESENTED FREQUENTLY

Crill data are obtained every fifth minute and the results are presented on screens. Process operators can therefore monitor quality in real time and quickly make necessary adjustments to keep the quality on specified targets.

ON TARGET PULP FOR EACH CUSTOMER

From a customer's perspective, measuring Crill and calculating important pulp properties means that pulp mills can produce optimal pulp for each customer, using no more energy than required.



The Crill measurement module can measure total, free and attached Crill on the fiber online.

Benefits of measuring crill

Crill is measured by comparing two optically measured surface areas. The total area of fibers and Crill is measured with UV. The total area of fibers only is measured with IR. The "Crill variable", CFP, is a concentration independent ratio, obtained when the fiber and Crill area is divided by the fiber only area. No image analysis is required, making the measurements extremely fast.

PARTS

Optical unit including

- UV and IR light source
- Electronics for signal treatment

Electronics

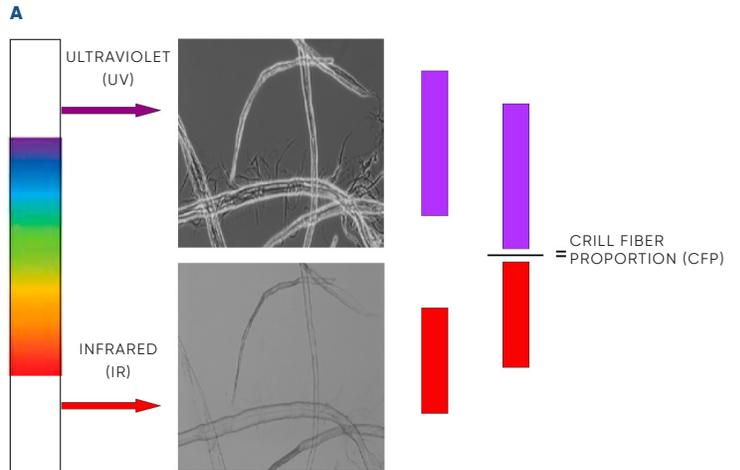
- Circuit boards
- PLC

Hardware

- Sample preparation
- Valves
- Washing/dilution tank
- Water reference tank

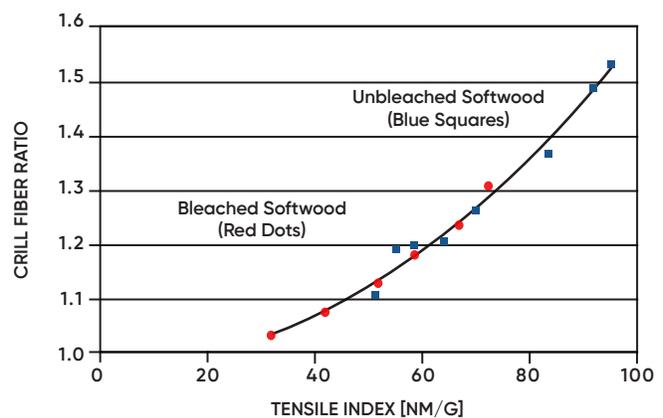
OUTPUT

- Total Crill Bonded Area
- Attached Crill Bonded Area
- Free Crill Bonded Area



A Crill measurement is based on comparing two optically measured surface areas (light absorption).

B Ultraviolet signals classify the amount of very small and thin particles (smaller than fines called Crill) that are not possible to measure with camera technology.



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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