PANELBOARD

MDF FIBER QUALITY MEASURING DEVICE

MDFEye

ANDRITZ

ENGINEERED SUCCESS

Your smart measuring device for fiber quality: MDFEye

In collaboration with PulpEye, ANDRITZ presents a measuring device, which is designed to constantly measure the fiber quality at the blow line.

In the paper industry, wet measurement is the method of choice as it provides the advantage of higher measuring resolution. The MDFEye measures the geometrical properties of the fibers and in order to be able to determine other characteristic features of the fibers, additional measuring modules can be added to the measuring device. In terms of gathering additional information, the system is very flexible. Several refiners can be monitored with one measuring device. PulpEye is an expert in fiber measurement technology and applies this form of evaluation in over 75 paper mills.

THE CHALLENGE

There is no established or standardized measuring instrument for MDF fibers in the medium-density fiberboard industry. The quality of the wood fibers is usually determined visually or haptically. The operator is the first and last control instance for the fibers before they are sent to the next processing step. As the properties of the fibers have an impact on the process and the final product, a specific fiber quality is becoming more and more important in production operations.

THE ANDRITZ SOLUTION

ANDRITZ has, therefore, decided to implement the MDFEye in the MDF industry in cooperation with PulpEye, thus taking a further step towards industry 4.0. With this fully automatic measuring device, measurements can be obtained with greater depth of information, repeat accuracy and reliability. As a result, the fibers become part of the quality and process management.

SAMPLING

The fibers are taken directly at the the blow line, immediately after the refiner, by means of an automated sampler and brought to the sample conditioning unit.

RefinerEye

The RefinerEye can be fed with samples from several refiners and thus prepares several samples in series for the subsequent quality check. In this process, the fibers are prepared for wet measuring and onward transport. The fibers are then brought to the measuring unit – the MDF Analyzer.

ANALYZER AND SMART CAMERA

Measuring in the analyzer takes place in two cycles using the smart camera device. The first cycle with high fiber density concentrates on broad fibers that are thicker than 50 microns. In the second measuring step, the fibers up to 10 microns are measured exactly.

MEASURING RESULTS

Evaluations of the fiber quality are generated based on the fiber properties measured. The width and length measurements of the individual fibers are used to plot distribution curves. These curves provide a statistical evaluation of fiber behavior depending on process information. With the number of fibers measured per gram, the plant operator has another parameter with which to control production. A matrix that is used to illustrate the fragment distribution of the fiber sample offers an additional tool for the technologist to evaluate the quality of the refined fibers. By measuring the fiber properties with the MDFEye, the technologist has the opportunity to draw conclusions from the MDF process (such as gluing, press speed, refiner energy). The MDFEye thus helps to identify savings potential in MDF production and to control the refiner process in a more autonomous way.

1 Sampler 2 RefinerEye 3 MDF Analyzer 4 Smart camera

BENEFITS

- Production monitoring and determination of fiber properties after the refining process
- Automatic and fast provision of reliable fiber measurement results
- Support of energy saving potentials on the MDF-production
- Drawing conclusions to reduce operating costs, e.g. savings on glue quantities, refining energy and increased press speed
- Reduction of the risk of human errors
- Sampling possible from multiple refiners
- Flexibility by extending the measuring modules
- Innovative step towards Industry 4.0 and autonomous plant operation
- Use of production quality to control the refining process in closed-loop operation

GLOBAL SUPPORT FOR ANY KIND OF REFINER

ANDRITZ is the leading supplier of systems, equipment, and services to the global panelboard industry. Services are provided through a worldwide network of technical and field service specialists.

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 PES_PB_brochure_MDFEye EN.0420