techpap
innovation for pulp & paper

ADVANTAGES — HIGHLIGHTS

> Economic and productive
- Fast measurements
- Integrating 25 years of experience
- Impeccable data handling facility
- Rugged, low maintenance requirements
- Controlled by MorFi user-friendly software running in computer under Windows OS
- Easy interconnection to mill network / DCS

> Flawless metrology
- Accurate, repeatable and reproducible
- ISO 16065-2 compliant
- Constant consistency for optimum precision
- Automatic sampling & cleaning, up to 200m and eight samplers

APPLICATIONS

> Research & Development
- Micro & nanofibrillated cellulose
- New fibers (annual plant, non-cellulose)
- Fluff pulp

> Raw materials assessment
- Quality control of incoming fibers, all types
- Hardwood, softwood, TMP, virgin, recycled

> Process control
- Refiner energy optimisation
- Refiner disk wear precise control
- Monitoring pulpers, screens, cleaners, classifiers, etc ...

GENERAL FEATURES

> Hardware
- Small footprint IP 54 stainless steel cabinet
- Integrated control panel with screen, mouse and full sized keyboard
- Optional carousel with six beakers for offline laboratory testing

> Relevant morphological data
- Fibrillation index
- Calculated wall thickness
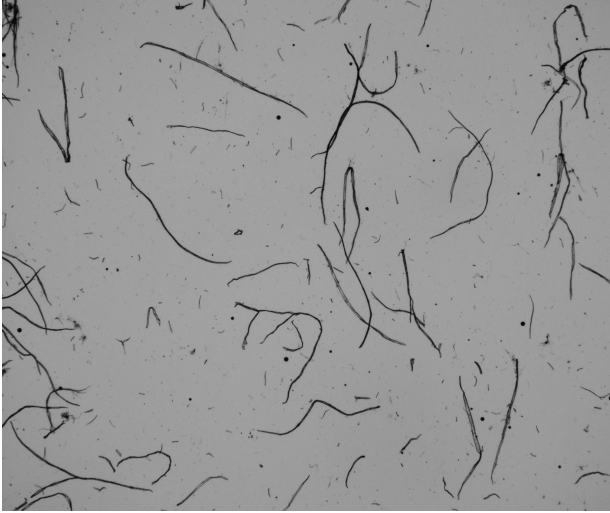- Detection of broken ends
- Primary and secondary fine elements

SPECIAL FEATURES

> Principal-component analysis
- PCA graph for process control

> Software extensions
- A.I. module for vessels detection & measurement
- A.I. module for wall thickness measurement
- Customer self-configurable A.I. module
- Solver module fiber blend characterization

> Hardware extension
- Special module with high-resolution camera for true optical measurement of fiber wall thickness, including results for average WT and distribution per WT classes

MORFI ON-LINE
Pulp & fiber-morphology analyser

DATA HANDLING & INTERFACES

> Data Generation
>> – Filter parameters adjustable
>> – Instant recalculation on parameter change

> Data Visualisation
>> – Several display modes at choice
>> – Individual displays user adaptable

> Data storage
>> – PDF report for single runs
>> – Excel® file for multiple runs
>> – To disk/network/server : OPC, DCS

Relevance

Fiber morphology investigation and control became a key asset, indispensable for several industries :

- – Pulp & Paper
- – Packaging
- – Molded pulp
- – Fibercement
- – Tobacco

The instrument provides the language base for an objective communication along the supply chain, R&D and QC.

Installation requirements

- Area of 90 x 90 x 180 cm
- Power supply 90–240V AC, 50–60Hz, 600 W
- Tap water (filtered 5µm, tempered, max 2 bar) and drain at floor level (DN 100)
- Computer with Core i7® and Windows® OS

Analysis duration

- Fibers and fine elements   3 minutes
- Shives and vessels   3 minutes

Measurements

Fibers

Number of fibers per gram	[nr/g]
Coarseness	[µg/m]
Average length arithmetic & weighted in length	[µm]
Length distribution	10 classes
Average width	[µm]
Width distribution	10 classes
Distribution length x width graphic display	
Average curl	[%]
Curl distribution	5 classes
Average kink angle	[°]
Kink distribution	5 classes
Kinked fibers content	[%]
Average number of kinks per fiber	[n]
Broken fibers content	[%]
Fiber fibrillation index	[%]
Average wall thickness estimation	[µm]

Fines

Average fine length	[µm]
Fine elements content in area	[%]
Fine elements content in length	[%]
Primary & secondary fines average length	[µm]
Primary & secondary fines ratio	[%]

Shives and Vessels

Average length, width and area	[µm & µm²]
Length, width and area distribution	10 classes
Total area per gram	[µm²/g]

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