FIBERTECH 2026

METSÄTEOLLISUUSPÄIVÄT

XAMK
Kuitulaboratorio
20 VUOTTA

XAMK
Kaakkois-Suomen ammattikorkeakoulu

FIBERLABORATORY

Kuitulaboratorion laajennus ja palvelukokonaisuus

www.xamk.fi/fiberlaboratory

XAMK
South-Eastern Finland
University of Applied Sciences

FIBERLABORATORY

FiberLaboratory is part of Xamk's Research unit Forest Bioeconomy and New Technologies

- A bioproduct technology innovation centre located in Savonlinna
- In-line process know-how for Fiber & Paper & Board
- Pioneer in ozone technology for process industries
- Piloting equipment that can be scaled up to production scale
- Portable piloting equipment for mill experiments
- Fiber, water and sludge laboratories
- Innovative real-time measurements and imaging technologies for a better understanding of process concepts in the chemical forest industry and CleanTech

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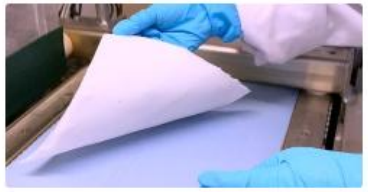
Industrial technology development of forest biorefinery processes

Large-scale processes and comprehensive technology mapping.



Practical testing

Services can be selected from rental premises to full-service test-run packages.

Piloting

We offer an extensive range of services that are tailored to customer requirements.

Research into rapid mixing phenomena

Serves to enhance industrial processes.

Development of microcrystalline cellulose production and applications

The raw material of microcrystalline cellulose is wood fibre. There are a lot of potential use cases.

Research services

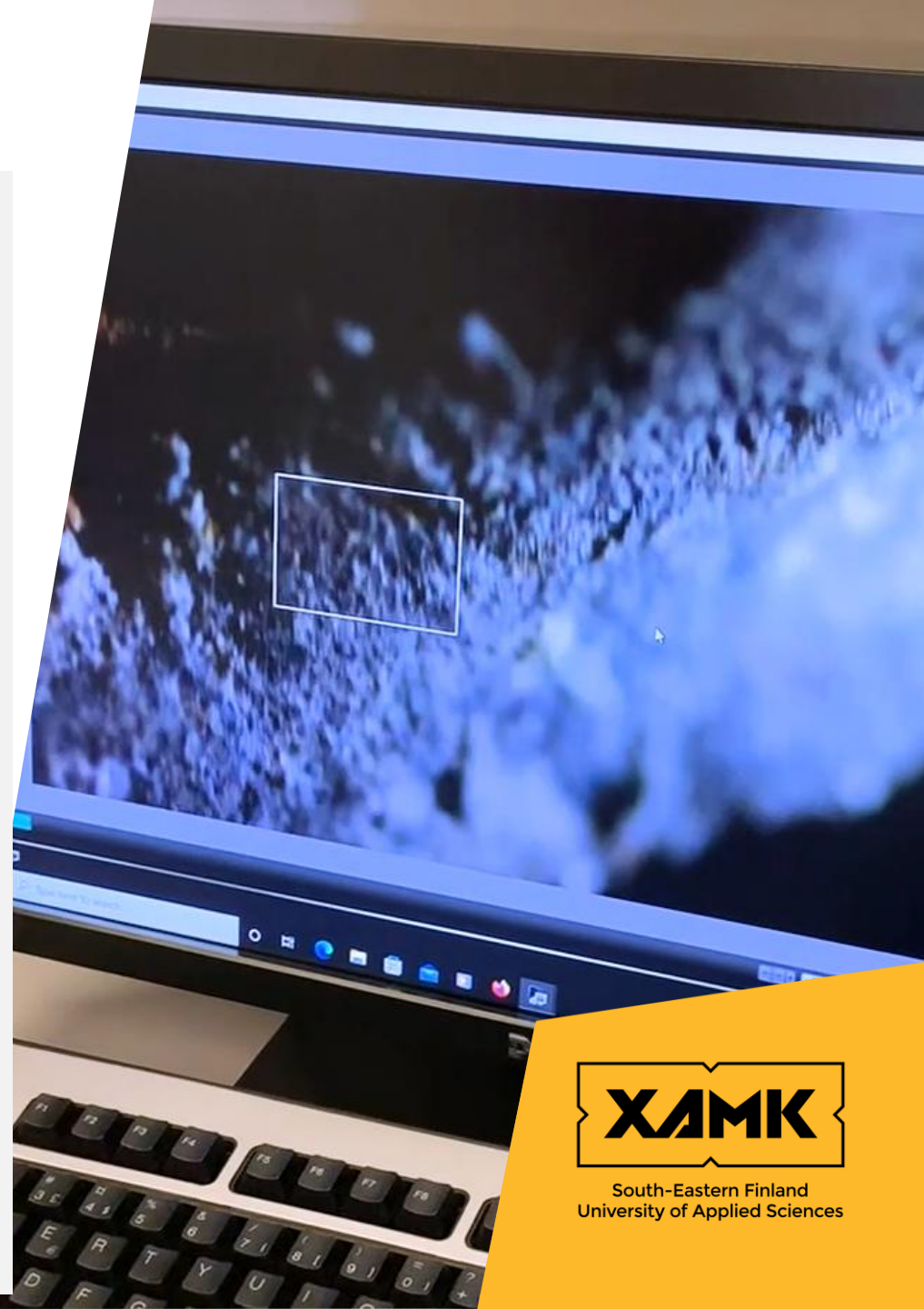
The results and new solutions support the competitiveness of the companies.

Laboratory analysis services

We report the results and suggestions of improvements, taking into account the cost-efficiency of the process.

Our services

BROAD EXPERTISE TAILORED TO YOUR NEEDS



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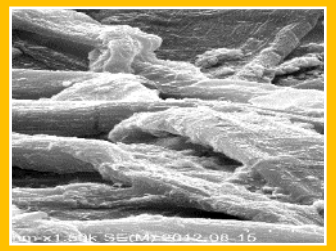
FIBERLABORATORY Focus



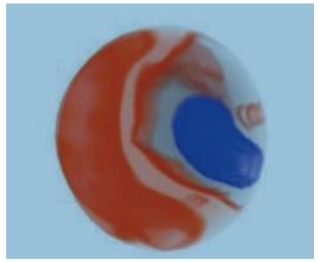
Wood fiber and cellulose technology

Water processes and sludge handling

Novel biomaterial and process solutions, O_3

Special solutions for circular economy

CO_2 capture and utilization



Mixing technology (FLASH) and innovative process applications

Rapid mixing phenomena

Control of reactions (chem-phys)

Displacement phenomena

Measurement technology (imaging, NMR/MRI), IoT solutions, modeling, AI

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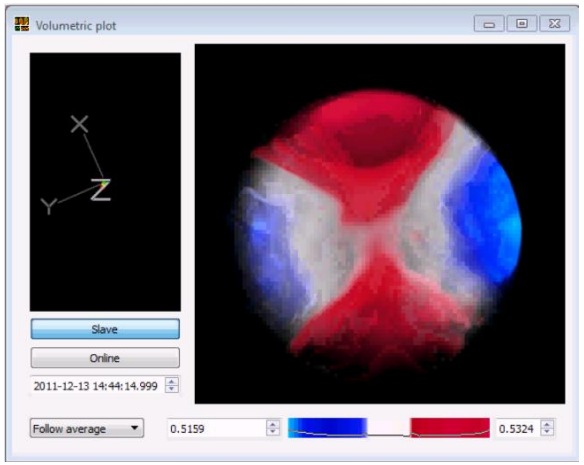
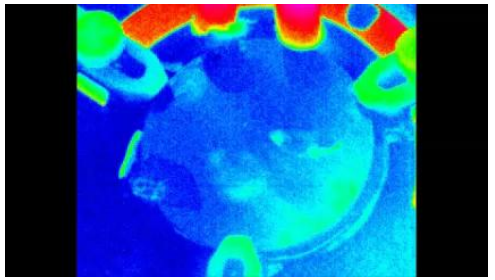
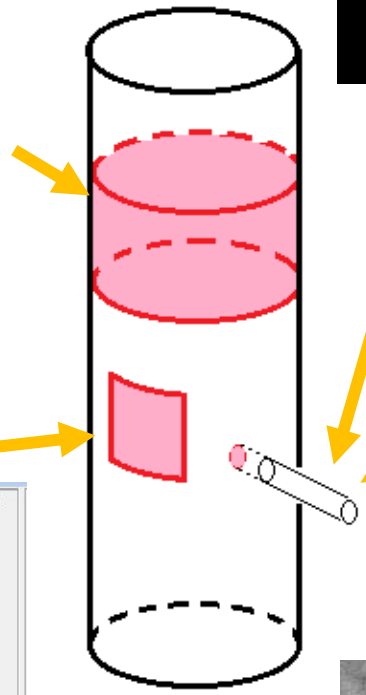
FIBERLABORATORY Realtime measurement

Tomography

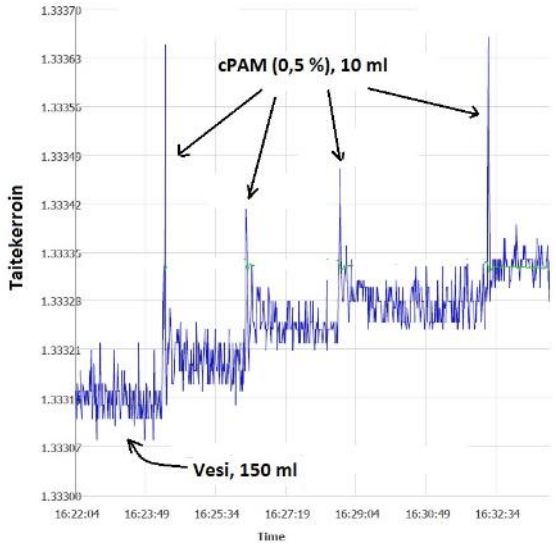




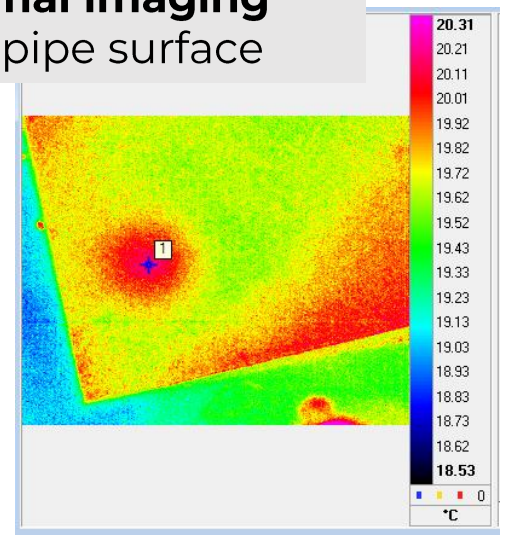
Thermal imaging
through IR-window



Refractometry



Thermal imaging
from pipe surface



Bubble/chemical
VIS-imaging

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Ozone treatment

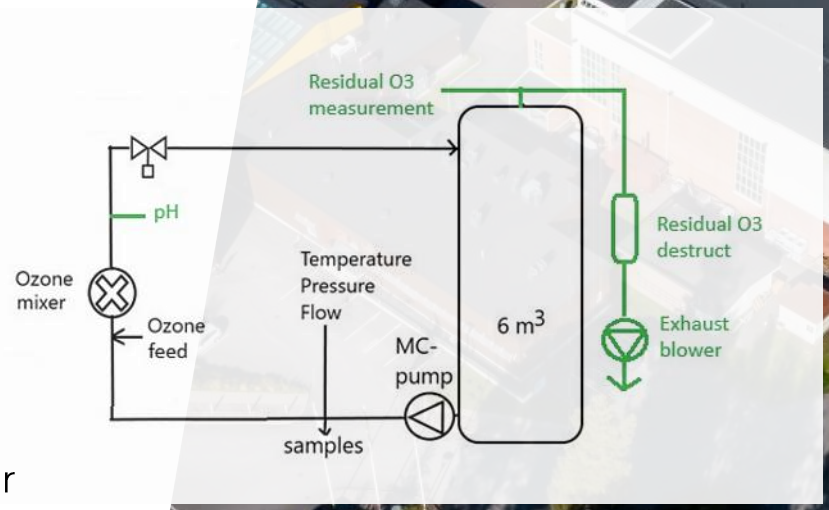
- For delignification, bleaching, molar mass adjustment etc.
  Two different ozone generating systems for different applications.

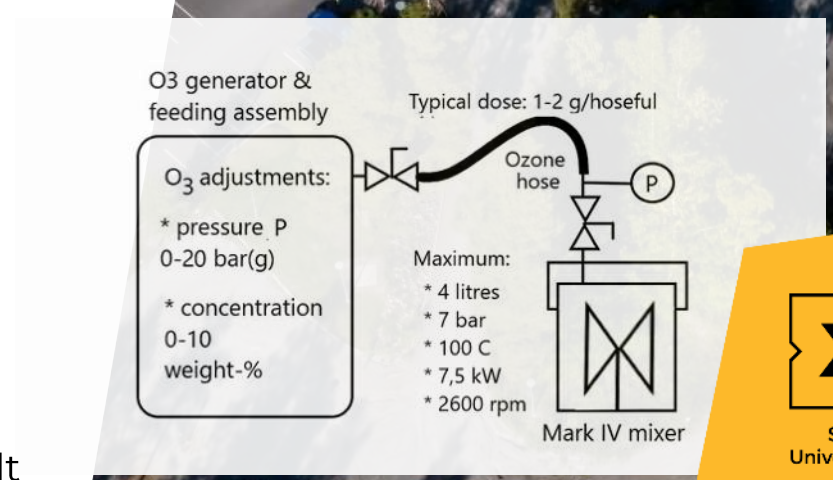
- Pilot size generator Primozone GM-36:
  - Continuous production c. 1 kg/h ozone.
  - Maximum concentration c. 18 mass-% ozone.
  - Maximum ozone pressure 2,5 bar(g) without compressor, with forthcoming ozone compressor c. 7 bar(g).

- Ozone container:
  - Ozone production is independent of feed to process.
  - Ozone collected to 100 liter pressurized tank and feed from there to process.
  - Gas feed to process: 0 – 1,3 g/s of ozone and 0 – 20 bar(g), for short duration or separate doses.
  - Maximum concentration 10 mass-% of ozone.

- **Large scale ozone treatment**
  - Larger batches are processed in FiberLaboratory's MC-environment.
- **Small scale ozone treatment**
  - Smaller batches are processed on Quantum Mark IV laboratory mixer using ozone container.

- Necessary ozone safety measurements and precautions are built in FiberLaboratory test hall.





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South-Eastern Finland University of Applied Sciences (Xamk) FiberLaboratory

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BIOPAK | 01.04.2024–31.03.2027
The objective of the project is to research, develop and demonstrate the recyclability of wood fiber packaging as well as take-back and reuse solutions.
Funded by the Häme ELY Centre, Co-funded by the European Union

BIOSKE | 01.02.2025–31.01.2027
The objective of the project is to bring new measurements to bioproduct mills, which can be applied for research purposes to study the scientific and practical operation of processes, process optimisation and control.
Funded by the South Savo Regional Council, Co-funded by the European Union

FIBEX | 01.03.2023–31.12.2025
The objective of the project is to focus Xamk's strong RDI activities and collaboration with companies, and to strengthen high-quality research infrastructure to support innovations for the green transition.
Funded by the Business Finland, NextGenerationEU

Euroopan unionin rahoittama
NextGenerationEU

INNOMIN | 01.10.2024–31.12.2026
The objective of the project is to find new innovative processing solutions for dry enrichment, leaching and flotation enrichment of critical minerals in the mining industry. Funded by the South Savo Regional Council, Regional Council of Pohjois-Savo, Regional Council of Kainuu, Co-funded by the European Union

MILL-INTEGRATED CO_2 -CAPTURE | 01.05.2025–30.04.2027
The objective of the project is to develop a cost- and energy-efficient carbon dioxide capture concept that can be integrated into pulp mill processes, moving toward more efficient and environmentally friendly industry.
Funded by the Business Finland

Total portfolio of bioproduct processes and technology R&D contains currently 6 projects, with a great number of industrial and research partners.

Co-funded by the European Union
BUSINESS FINLAND
South Savo Regional Council
Pohjois-Savon liitto
REGIONAL COUNCIL OF KAINUU
Centre for Economic Development, Transport and the Environment

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XAMK FIBERLABORATORY

Looking ahead to 2027

- The FiberLaboratory pilot environment is continuously developing.
- New pilot equipment, extended testing capabilities and additional power reserves are strengthening our support for future fibre-based process development.

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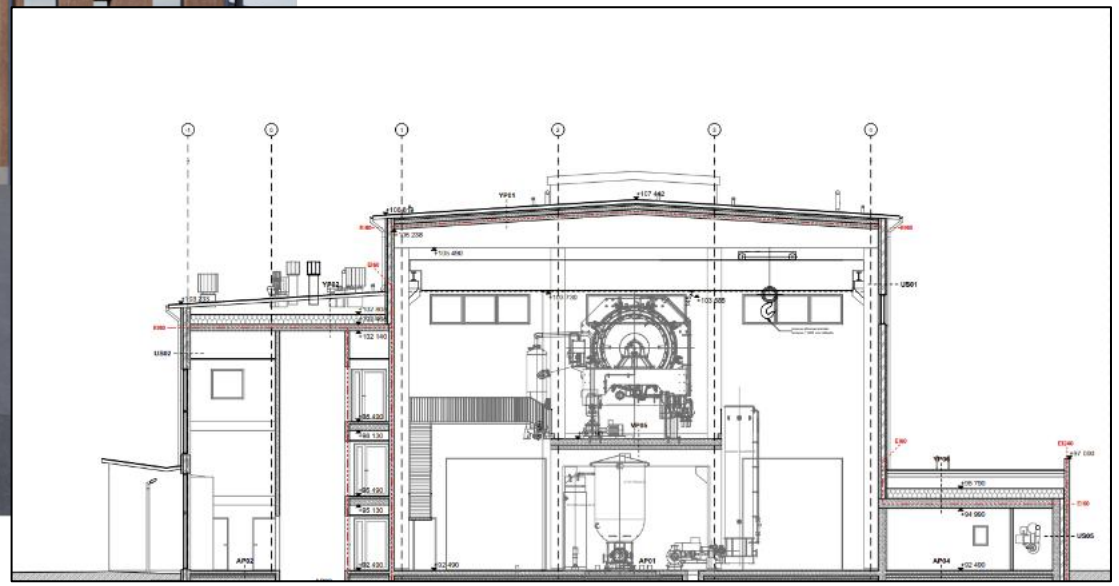
FIBERLABORATORY Pilot hall expansion

- Mill scale piloting equipment for pulp washing testing and research
- Digesters for biomaterials valorization
- ATEX research environment



Tunne huominen.

Laboratoriokierros Xamk Kuitulaboratorioon

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Savonlinna

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