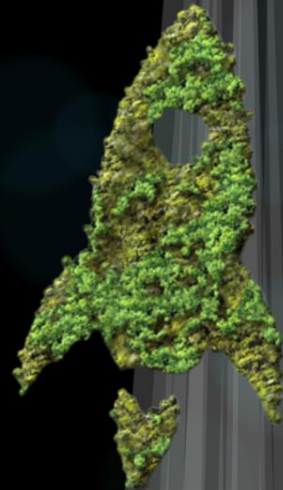


FIBERX

FINLAND

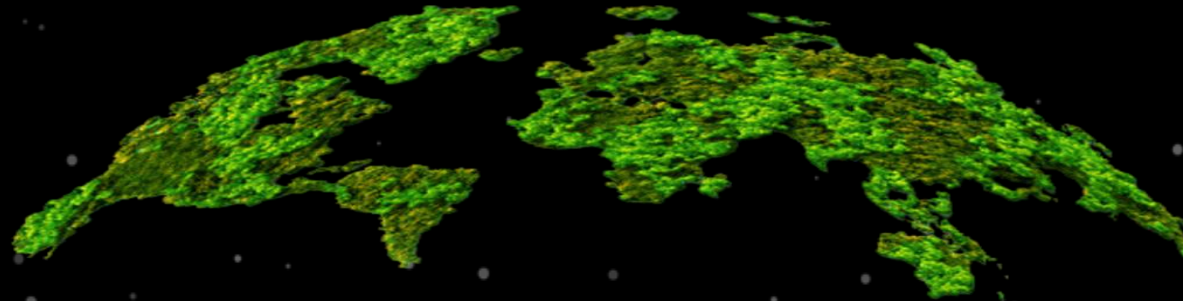
MOVING INDUSTRIES WITH REGENERATIVE FIBER SOLUTIONS



FiberTech 24.8.2023

Tiina Ruuska

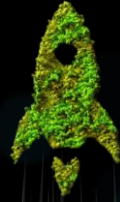
OUR PURPOSE



Our mission is to come up with new concepts that inspire people and drive industries forward.

We combined the wisdom of biofiber materials, the intelligence of pulp technology and doing circular under the same umbrella. We're here to create new materials and scalable manufacturing processes in a simplest way that drive our customer's business. Our service offering covers the entire lifecycle.

TIMELINE



Investments to key BU's.
Local & global ecosystem.
Bio plants to Finland & France.

2024

Privately owned company, with 16 employees + on-demand experts.

Lemi site officially open.
Projects with key partners.
Investments in piloting concepts (Trumpjet, pulp washing).
Start phase @Lappeenranta biorefinery .

2023

Customer projects & trials @Lemi.
Investments, team building & new projects.
NBG biorefinery progressing.

2022

Commercial trials start @Lemi PM.
Customer turn-key project -
Lappeenranta biorefinery starts with NBG.

2021

Building the facilities @Lemi.
Pilot paper machine, stock prep. etc.

2020

Fiber-X Finland Oy was founded. The story began...

2019

INNOVATION ROOTS
IN SWEDEN @FIBER-X AB

FULL LIFECYCLE OFFERING FROM RESEARCH TO BUSINESS



**BIOMATERIALS
& DESIGN**



**PRODUCTION
& TECHNOLOGY**



**ENGINEERING
& BIOPLANTS**

Fiber-X is a creative, supportive and results-driven environment where ideas are freely tested and refined. Open for companies to explore, pilot and scale joint ideation, concepts and projects.



BIOMATERIALS & DESIGN

INSPIRED BY NATURE.

FROM WASTE TO MATERIAL TO DESIGN

- Hub for constant WOW-innovations & prototypes from waste and side streams.
- Commercial product design concepts and applications across industries: interior design, packaging, luxury, transportation, fabrics/textiles, composites...
- A launch pad for startups, pre-commercialization & scale-up. Housing new material innovations (IPR).
- Multidisciplinary, international teams. Co-operation with universities and global partner network.



Transforming Residue to Resource (R2R)
...by recognizing value where others see waste.



**PRODUCTION
& TECHNOLOGY**

DOING CIRCULAR.

PILOTING IS LEARNING.

- Piloting center @Lemi (Lappeenranta); neutral, open access site to develop and test novel biobased innovations, materials, recipes, products & processes for commercial scale-up.
- Pre-production, custom manufacturing & technical concept solutions. Proof-of-concept testing with cost-effective "can-do approach".
- Focus on modular manufacturing units / MINIMILL concepts. Locally/globally sustainable solutions.
- Lignocellulose-based materials, waste and side streams.



**FIBER-X
PILOTING & TRAINING
CENTER @LEMI**



RAAKA-AINEET

AGROKUIDUT
SRC-KUIDUT
KUORIJÄTE
SIVUVIRRAT
TEKSTIILIKUIDUT

FIBER-X PILOTTIYMPÄRISTÖ @Lemi

JAUHATUS & KUITUKÄSITTELY

Raaka-aineiden muokkaaminen
selluloosaksi & fraktiointi
Sisäinen fibrillaatio

Fraktioiden pilotointi: Hemiselluloosat,
uuteaineet, ligniini
Erikoiskuitumateriaalit:
NFC/MFC & MCC

KOEKONE JA KONVERTOINTI



KOEKONE: pituus 30m, leveys 60cm, modulaarinen,
40% tyhjää tilaa testauslaitteistolle. Nopeus <200 m/min,
lopputuote 15-500g/m², kuivatus loppukosteuteen.
Tuotantokapasiteetti n. 3tn/pv.

PROSESSITUTKIMUS & LAITETESTAUS

- Erikoisperälaatikot
- Vahto- ja korkeasakeusrainaus
- Sensoritestausta
- Barrierpäällystys
- Erikoispinnoitteet
- Elektrospinnaus
- Muottipuristat



MASSANKÄSITTELY

Massat, jätetekstiili, ligniini,
muut. Erikoishienojen massojen
pesu/sakeutus mahdollista,
myös MFC/MCC

SYRJÄYTYSPELURI: Teolliset
massapesut: neutralointi,
uuteaineiden, värien jne. pesu,
max 600 kg/h.

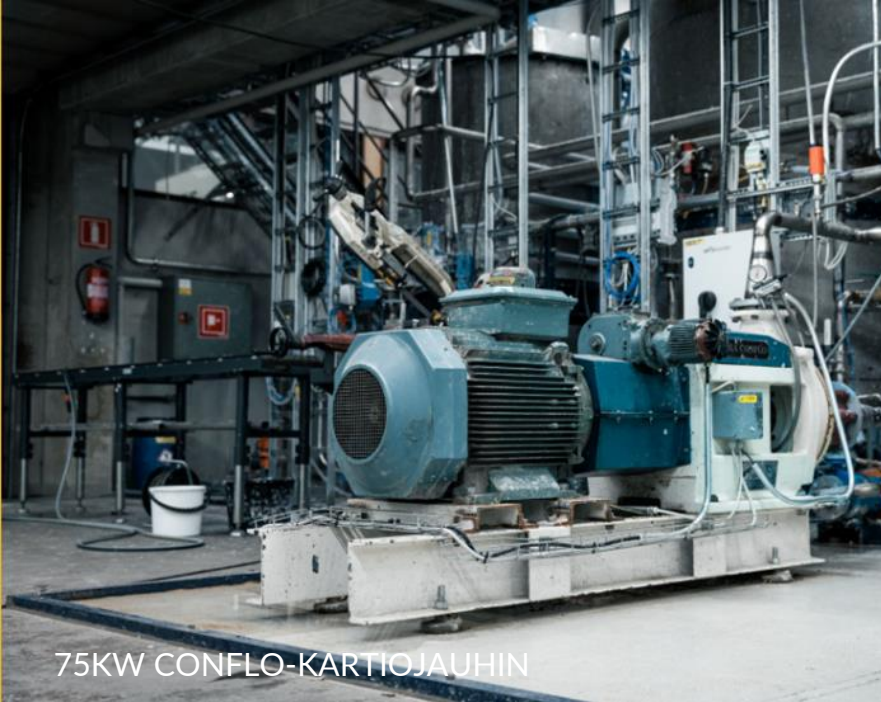
MATERIAALI- JA RESEPTIIKKATESTAUS

- Komposiitti-, monikerros- ja kalvomateriaalit
- Filmi- ja filtterimateriaalit (nanosellu, grafeeni yms.)
- Täyteaineet, kemikaalit, vahat, erikoiskuidut, erikoismassat (MCC/MFC, kierrätyskuidut)
- Trumpjet syöttöjärjestelmä
- Säiliökapasiteetti n. 45 m³
- Laboratoriopalvelut

ASIAKASKOULUTUS

Paperin ja kartongin prosessit,
optimointi & kunnossapito
Räätälöidyt hands-on
koulutuskokonaisuudet
(teoria+käytäntö)





75KW CONFLO-KARTIOJAUHIN



**FIBER-X
PILOTING & TRAINING
CENTER @LEMI**



SEPPO RIKKINEN / FX PILOT TEST LINE



BHS SONTHOFEN BELT FILTER





ENGINEERING & BIOPANTS

MAKING CIRCULAR ECONOMY HAPPEN.

- Superior process design and engineering from planning to implementation
- Project management, optimization & maintenance.
- Customized project deliveries, with modular solutions for the needs across industries, close to raw materials and end-use.
- Various business models & win-win partnership options (incl. IPR). Local & global scale-up potential, with vast global expert network.

Fiber-X projects:

- [Nordic Bioproducts Group Oy biorefinery @Lappeenranta \(MCC pilot\)](#)
- [New biopants progressing to France and Finland 2024>](#)



BIOPLANTS & ECOSYSTEMS



FIBERX

F I N L A N D

YOUR GLOBAL PARTNER IN
REGENERATIVE BUSINESS.



-  Lemi, Finland
-  info@fiber-x.fi
-  [fiber-x finland oy](https://www.linkedin.com/company/fiber-x-finland-oy)
-  [fiber-x.fi](https://www.fiber-x.fi)

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Tiina Ruuska