

A dense forest of tall, thin trees with sunlight filtering through the canopy, creating a bright, hazy atmosphere. The ground is covered in lush green undergrowth.

# Packaging & Forestry



# Novel 3D Wood Fibre Products with VTT expert support: A Sustainable Alternative to Plastic



**An alternative to plastic:** A novel **3D wood fibre product that replaces traditional plastic**. It can be used in a wide range of applications, **from takeaway to industrial packing**



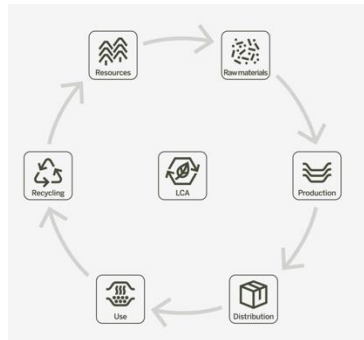
**The collaboration:** **Valmet**, a leading provider of process technologies, automation, and services for the pulp, paper, energy, and process industries, has joined forces with **Metsä Group**, a forest industry company, and its innovation-focused subsidiary, **Metsä Spring**. Together with the support of VTT, they accelerated the design and validation of a new production line and process, collaborating to develop the Muoto® packaging solution



**Towards green transition:** Novel 3D fibre products present a disruptive and sustainable solution that offers **a biodegradable alternative for the world's packaging needs**



Demo 3D fibre production line created as part of the project



An RTO – Industry  
Collaboration

For an alternative  
to plastic called  
Muoto®



This collaboration has already **brought Muoto® to market**, addressing plastic packaging challenges. However, the technology and expertise behind this partnership have the potential to drive the development of **multiple new products** and **transform the global packaging industry**

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## RTO expertise-driven R&D



Collaboration with VTT was key in **designing the industrial process, offering access to specialised equipment and testing facilities.** Their expertise in fiber suspensions and industrial processing helped speed up development

2020

2021

2022

2022

2024

4  
Years

EU &  
Worldwide  
Market  
Expansion

## Start of the collaboration

Metsä Group and Valmet collaborate around the development of **a novel 3D fibre-based material**



## From Lab to Demonstration

The first phase involved lab research, progressing to the construction of **a pilot-scale machine and culminating in the launch of a demo plant** in May 2022

## First commercial exploitation

Building on the success of the demo line, Valmet and VTT continue their collaboration to **mature the technology and explore its commercial potential and potential scaling up for broader market applications**



## Tech Development continues for broader applications

In 2024, VTT launches a new initiative to **advance low-carbon technology for sustainable fiber-based products.** It includes multiple projects and an **open-access pilot line** in Jyväskylä, Finland, which will enable continued research and innovation in fibre product manufacturing



## 3-Dimensional Impact

- A game-changing, natural, and sustainable solution** that directly combats climate change and the global plastic crisis. This breakthrough alternative to plastics and aluminum revolutionizes food packaging and beyond
- High-speed innovation meets efficiency:** The cutting-edge, automated production line leverages continuously evolving technology, **slashing water consumption by up to 90%** and **cutting overall energy use by more than half**
- Reduced time to market** with agile piloting and validated design choices

VTT's experienced researchers and their strong expertise on piloting were essential in reaching our targets. There was no need for an extensive trial-and-error period during development, which expedited the whole development process.

*Sampo Immonen, Head of Line R&D at Valmet*

