



Session 7	Scale-up of novel biomaterials and processes, powered by INN-PRESSME
Pitch Title	Chemical recycling of discarded textiles to advanced biobased nanomaterials
Company	CelluCircle AB
Speaker	Tomas Hjort
Keywords feedstock	Textiles
Keywords technology	Chemical recycling
Keywords End-Product	NanoComposites, Nanocellulose,

Abstract:

The textile industry is one of the most resource-intensive sectors, consuming vast amounts of water, raw materials, land, and generating significant carbon emissions. Over 100 million tons of textiles are produced annually, and this number is rapidly increasing. However, only a small fraction of these textiles are recycled today. Most post-consumer textiles end up in landfills or are incinerated, contributing to over 10% of global CO2 emissions.

At CelluCircle, we've developed a unique and proprietary process for the sustainable, large scale, recycling of post-consumer textiles to new advanced Nanomaterials and fibers.

The outputs from our process comprise:

- > NanoCellulose of CNC, CNF and MFC type, (cotton based), with the same target applications as its wood based counterparts.
- > Direct production of Nanocomposites, replacing fossil-based plastics in 3D printing, injection molding, and press molding. The reinforcement in the composite consist of Nanocellulose.
- > Original textile fibers can be recovered and spun back into new garments and textiles.

CelluCircle's process can recycle feedstock from nearly all polycotton and synthetic fiber blends, regardless of color.

The process is sustainable, water based at room temperature, using mild chemicals.

