

The forest industry and how it is transforming the circular economy

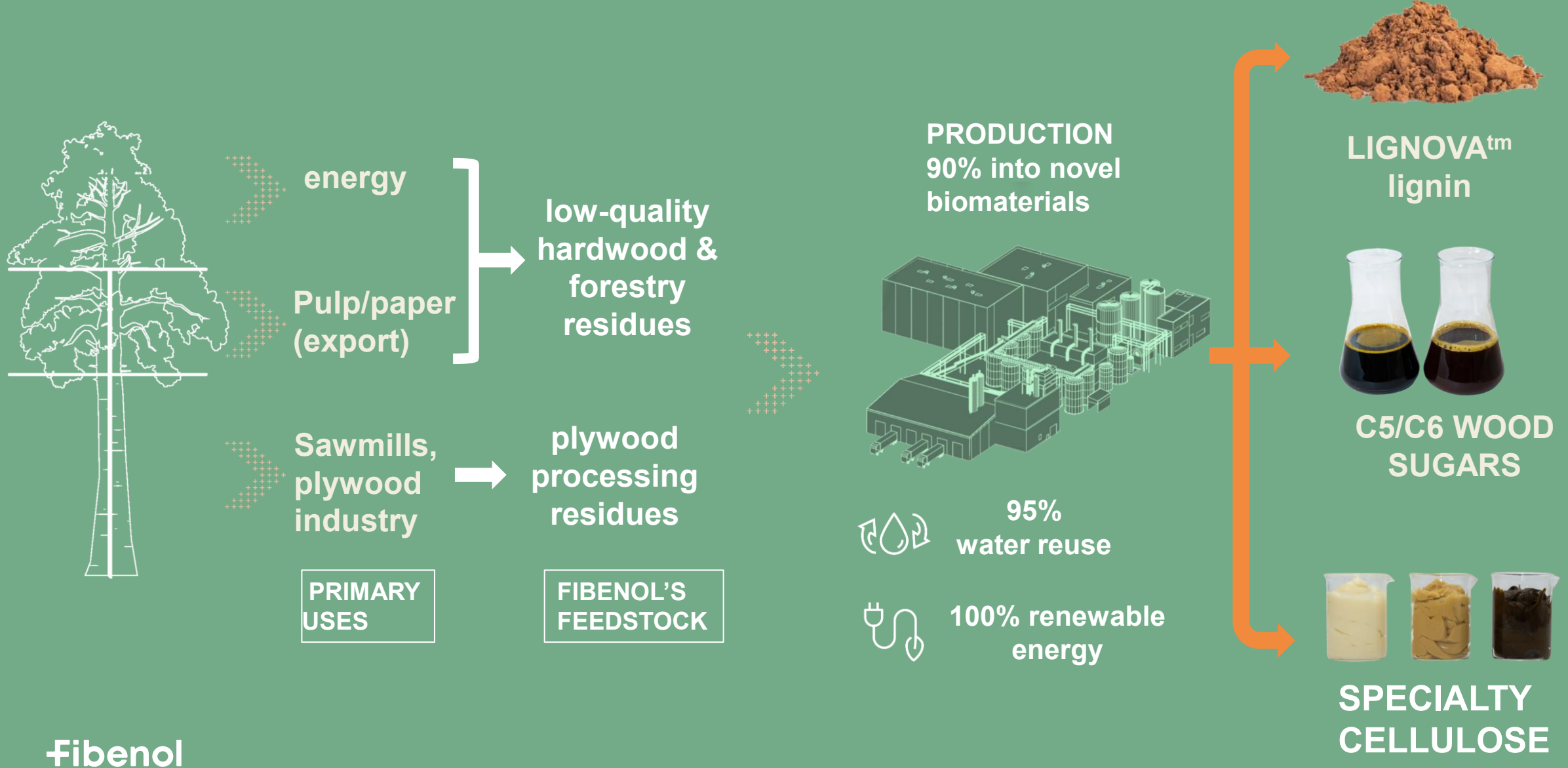
at the example of Fibenol



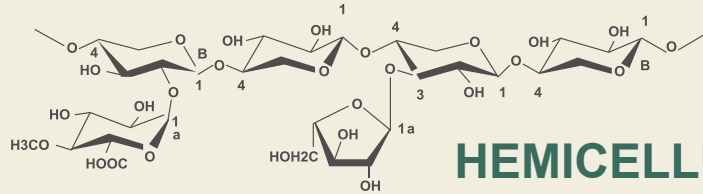
The background image shows an industrial oil field with several pumpjacks (jackalopes) in operation. Thick black smoke is rising from the smokestacks, filling the sky. The scene is set in a desert-like environment with a clear, hazy sky. The overall tone is somber and industrial.

The Challenge: to Defossilise value chains

Solution: new value chains

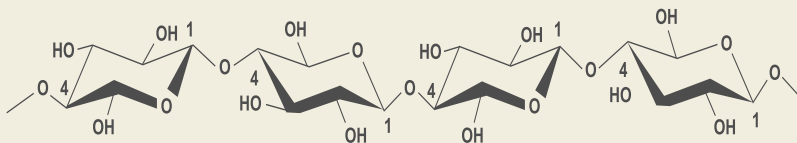
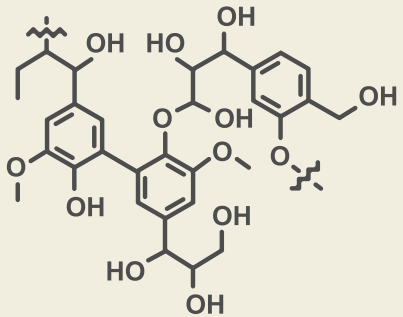


Technological breakthrough



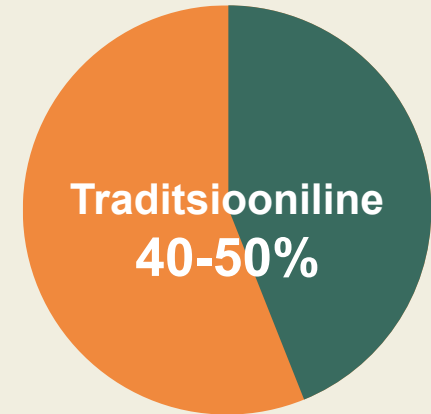
HEMICELLULOSE
25% - 35%

LIGNIN
20% - 30%

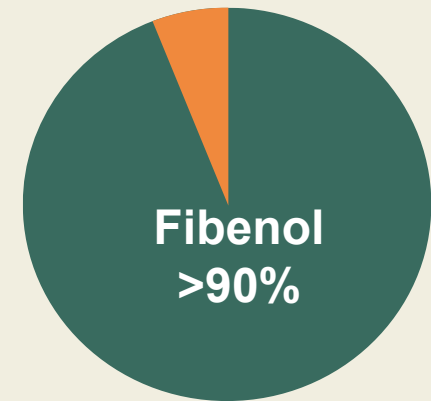


CELLULOSE
35% - 45%

One product
focus



Focus to
whole wood
valorization



SUNBURST™ pre-treatment

Input: flaked wood

Process: temperature + pressure + mechanical force



Fibinol

Result: chemically unmodified, high-purity products



Biosurfactants



Concrete



Adhesives and resins



Bioplastics



Insulation materials



Bitumen

Powered by Innovation Projects



Fibinol is leading and participating in the projects that are supported by Circular Bio-based Europe Joint Undertaking and its members and Co-funded by the European Union under grant agreements No 792061 SWEETWOODS, No 101022987 VIOBOND, No 101112555 SYLPLANT, No 101112453 COUNTLESS, No 101112521 REDYSIGN, No 101118127 ECOLOOP.

A wide-angle photograph of an industrial facility under a clear blue sky. On the left, a row of large, green, corrugated metal storage tanks extends into the distance. A walkway with railings runs along the top of these tanks. In the foreground, a group of about ten people, mostly wearing orange safety vests and hard hats, are standing on a paved area. A dark asphalt road with white dashed lines runs from the foreground towards the background. On the right side of the road, there is a complex industrial structure with multiple levels, pipes, and a staircase. In the far background, some green trees are visible. The overall scene suggests a large-scale industrial project or a testing facility.

**New things need to be
tested in real life!**

LIGNOVA™ in road construction

LIGNOVA™: Biobased binder

- + Lower carbon footprint
- + Alternative to bitumen
- + Long-term carbon sequestration
- + Local raw material

HOW?

Biofuel use at asphalt making +
25% LIGNOVA substitution = Carbon-neutral road!?!

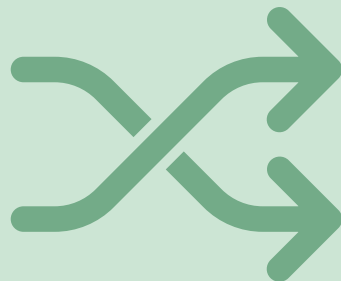
4000m2 demonstration project,
June 2023, Estonia





Ülemiste shopping mall
parking area

2023



2024



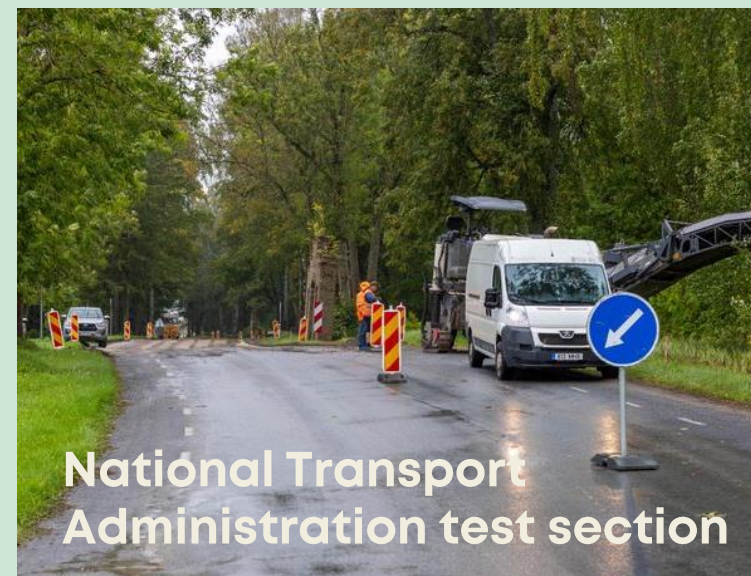
Viimsi municipality
main street



Laaneserva real estate



Utilitas parking area



National Transport
Administration test section



Biowaste collection and bioplastic

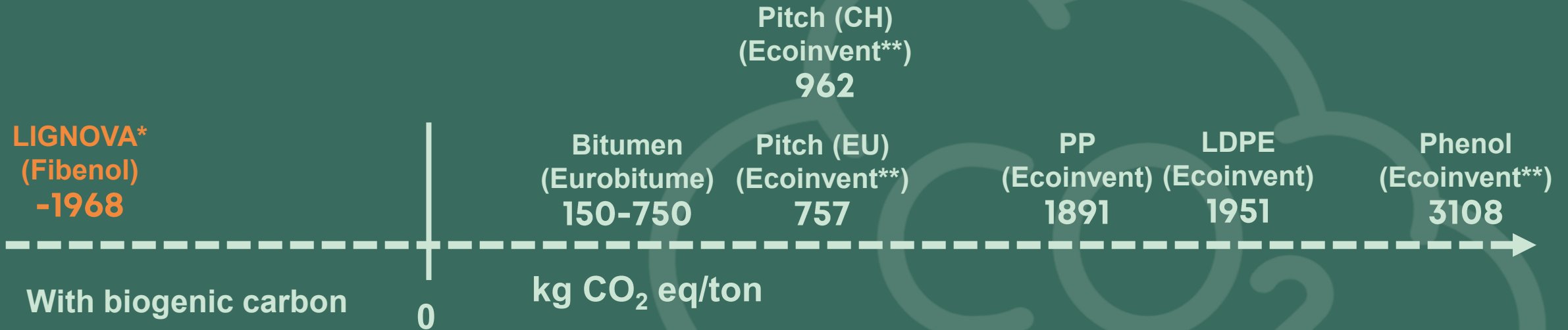
+ WHAT?

- + First compostable biowaste collection bags made from LIGNOVA up to 18%
- + Strengthening properties
- + Local raw material

+ WHY?

- + Expand local value chain
- + Reduced environmental impact
- + Home use, industrial use
- + Good SAUNA smell :)

Carbon Footprint of **LIGNOVA™**



*IPCC, mass allocation

**Ecoinvent v3.9

Science based and data driven LCA

+ High quality primary data is key!

+ Transparency!



FUTURE



Global bioindustry & technology export

2023

2026

2030

2032

2034

2035

Demo

X 2

Fibenol 1

Fibenol 2

Fibenol 3

Fibenol 4



Are you ready to Lead the Way Towards a Greener Future with Fibenol?

#fiberbeyondoil

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