NEWLIEP

Terranol NordFuel Sekab
SWEDISH ETHANOL CHEMISTRY

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Topic: EIC-FTI-2018-2020 – Fast Track to Innovation (FTI)
Duration: August 2010 – July 2021
Budget: 4 112 500 €

NEWLIEP

Injecting New Life into Cellulosic Ethanol Production

We bridge the gap to economically & feasible fuel ethanol from Nordic renewable & sustainable forest-based residues.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 869879

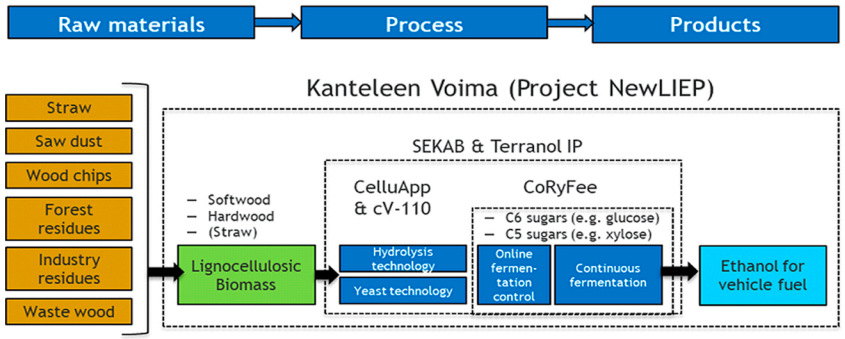
Project overview

The most promising feedstock for advanced bioethanol is lignocellulose from agricultural or forestry residues. NewLiEP will further develop and demonstrate in near-industrial scale more efficient utilization and higher ethanol yield from such material. The project is carried out by two leading technology players, Terranol A/S and SEKAB E-technology in cooperation with Kanteleen Voima Oy, an investor of the Nordfuel bioethanol plant, where the solution will be taken in use in industrial scale.

Objectives

- Validate the technology and optimise conditions for continuous fermentation of different wood species and mixed wood feedstock.
- Demonstrations of continuous fermentation for relevant wood-based biomass types.
- Determine the technical design of a bioethanol plant featuring CoRyFee and CelluAPP technologies that meets techno-economic and environmental performances (GHG).
- Develop the product, business concept and understanding of the relevant markets.

Biorefinery
Demonstration Plant
Örnsköldsvik, Sweden



The NewLiEP process

The combined application of the CelluAPP pre-treatment and hydrolysis platform, the CoRyFee continuous fermentation concept and yeast strain cV-110 is expected to enable numerous benefits:

- Increasing the productivity of a given size fermentation facility by more than 100% compared with current state of the art.
- Enabling the use of otherwise hitherto nonfermentable material by utilizing biomass hydrolysate with more than twice the amount of inhibitory compounds with help of inhibitor relief technology and yeast optimised to higher inhibitor level.
- Reducing the needed amount of yeast for inoculation by 80% or more compared with current state of the art as a result of using a more efficient yeast strain and novel continuous fermentation strategy.
- The process allows advanced automation processes and continuous process development by providing real time data and input to operators and engineers. Detection of process changes allow for proactive actions that would otherwise go undetected.
- Reduction of CAPEX of fermentation unit of at least 50% due to lower volume requirement to produce the same ethanol volume.