



Efficient Syngas Fermentation of Gasified Woody Biomass

Introduction to the SynFerm project

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The SynFerm project

Project partners: Cortus, Linköping University, NSR AB, Q Power, St1 Biokraft (former Biokraft) and Baltic Energy Innovation Centre (coordinator)

Project duration: 1 January 2023 – 30 June 2025

Public funding: Co-financed by the Swedish Energy Agency (Bio+ programme)



The SynFerm project

The SynFerm project is based on the Cortus' WoodRoll® gasification technology and Q Power's "solid-state" biological methanation technology.

WoodRoll® provides a nitrogen free syngas with a high H₂ content

Q Power's methanation technology admits efficient water-gas shift (WGS)

Thermal gasification of woody biomass makes the C and H content in the lignocellulose available for methane production microbes.

Several advantages compared to catalytic methanation which requires extensive and expensive gas cleaning at elevated pressure and temperature.

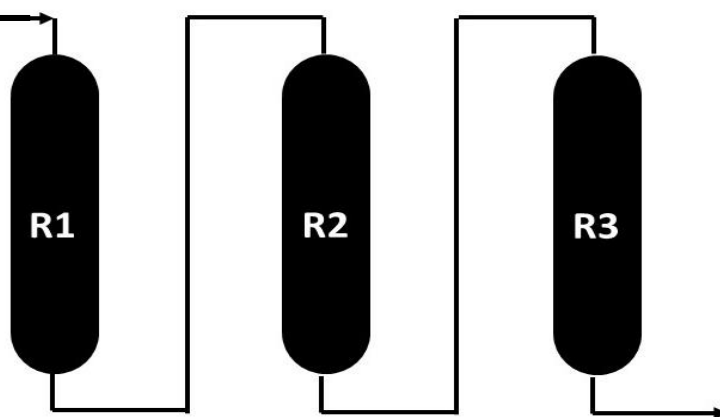
Project goals

- Achieve 10 L methane per L reactor volume and day
- Achieve a power consumption of $< 0.02 \text{ kWh}_{\text{el}}$ per kWh methane
- Achieve complete conversion of CO
- Achieve less than 2% hydrogen in the final product (to fulfill SS EN 16723 2 2017 EN)

Laboratory test with model gas



Feed-in gas



	Feed-in gas	R1	R2	R3
CH ₄ [vol-%]	2.5	15.1	51.4	60.7
H ₂ [vol-%]	56.0	44.4	11.1	3.6
CO ₂ [vol-%]	11.0	19.9	29.7	35.7
CO [vol-%]	30.5	20.7	7.8	0.0

Tests with real-life syngas



The WoodRoll® plant
in Höganäs



Q Power's mobile
pilot plant



**Thank you for your
attention!**



<https://synferm.beic.nu>