

## PRESS RELEASE

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### **BioTheRos – Collaborative actions to bring novel BIOfuels THERmochemical ROutes into industrial Scale**

We are happy to introduce BioTheRos' demonstration facilities in the **Netherlands** and **Austria**. These facilities are essential for BioTheRos' expected impact of scaling sustainable, cost-effective biofuel technologies to reduce reliance on fossil fuels in aviation and marine sectors. With the goal of achieving significant greenhouse gas (GHG) reductions, BioTheRos is harnessing thermochemical biomass conversion technologies, specifically pyrolysis and gasification with Fischer-Tropsch (FT) synthesis, to pave the way for large-scale, advanced biofuel production.

#### ***The Netherlands – Pyrolysis & Upgrading Units***

In the Netherlands, BTG operates a pyrolysis bench-scale unit with a capacity of 2–5 kg/h and a larger-scale pilot plant with a capacity of 80–200 kg/h. This facility focuses on transforming biomass into pyrolysis oil, which will undergo a subsequent upgrading process for conversion into transport fuels. The upgrading unit, capable of continuous operation with a throughput of 0.8–1.5 kg/day, is designed to upgrade pyrolysis oil for the production of sustainable aviation fuel and marine biofuels.



*Figure 1: BTG pilot plant*

Both the pyrolysis unit and the upgrading unit are operating in accordance with specifications. In the BTG laboratory additional equipment is being implemented to be able to prepare and analyze the produced transportation fuels, to facilitate the potential certification of the BTG transport fuel as SAF. It is important to determine the right temperature 'cut-off' points for the SAF fraction of the pyrolysis oil. Preliminary results are encouraging.



### ***Austria – Gasification Unit and Fischer-Tropsch Synthesis***

In Austria, BEST operates a 1 MW-scale Dual Fluidized Bed (DFB) gasification reactor (Fig. 2) with a capacity of 200 kg/h. This unique facility produces high-quality syngas, which can then be converted into synthetic fuel through Fischer-Tropsch (FT) synthesis. A pilot plant employing a slurry-based FT process (Fig. 3) produces approximately 15-20 liters of raw FT product as part of the project's intended operations. Within BioTheRoS a full chain demonstration from biogenic residues to FT raw product will be a benchmark for technological advancement and marks a crucial juncture in the path towards validating the scalability of this process. The FT waxes produced will undergo further upgrading at a hydrocracking pilot plant in Greece, ensuring high-quality fuel suitable for aviation and marine applications.



*Figure 2: 1 MW Gasification plant*



*Figure 3: 250 kW FT-Pilot unit*



The successful operation of the full process chain using forestry residues during the initial phase of the project was a significant milestone in 2024. The gathered information will serve as a foundation for the forthcoming endeavors focused on evaluating scalability, economic viability, and environmental sustainability.

### **Supporting Sustainable Goals and Reducing Emissions**

BioTheRoS' goals are strategically aligned with the global mission to reduce carbon emissions and increase energy security by developing renewable alternatives to fossil fuels. By employing sustainable lignocellulosic biomass and advanced thermochemical conversion processes, BioTheRoS aims to demonstrate a viable and scalable pathway to net-zero emissions within aviation and marine transport sectors.

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