



2018

BIOECONOMY MISSION

*Feb 14-15, 2018
Wageningen, Netherlands*



DAY 1 PROGRAM (14TH FEB)

- 8:15H-9:45H Trip from Wageningen UR (Atlas Building) to BTG (Enschede)
- 9:45H-11:15H Visit BTG Research, Enschede
- 11:15H-12:30H Visit Empyro Pyrolysis Oil Plant, Hengelo
- 12:30H-15:30H Trip from Hengelo to Uden (including Lunch stop)
- 15:30H-17:00H Visit Newfoss Green Biorefinery, Uden
- 17:00H-18:00H Trip from Newfoss, Uden to Wageningen UR
- 20:00H Dinner
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DAY 2 PROGRAM (15TH FEB)

- 9:00H-9:30H Meet at Wageningen UR (Atlas Building)
- 9:30H-10:15H Welcome and Pitching
- 10:15H-10:45H Crops for a Biobased Economy – Luisa Trindade (Group Leader, Biobased Economy, WUR)
- 10:45H-11:15H Small-scale Biorefinery Opportunities for Agriculture – Johan Sanders (Emeritus Professor Plant Valorisation, WUR)
- 11:15H-11:45H Coffee and Networking
- 11:45H-12:15H Industry Developments in the Biobased Economy - Annita Westernbroek, (Director, Dutch Biorefinery Cluster)
- 12:15H-12:45H Biorefinery Research Initiatives at Wageningen – Gulden Yilmaz (Biorefinery Programme Manager, WUR)
- 12:45H-14:00H Lunch and Networking/B2B
- 14:00H-15:00H Visit to Biobased Products Innovation Plant at Wageningen University
- 15:00H Close



Visit: BTG Research Centre

Company: BTG (Biomass Technology Group)

Location: Enschede

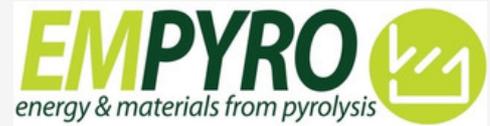
Description: BTG Biomass Technology Group BV (BTG) is an independent, private group of companies, which for the past 30 years has specialised in the process of conversion of biomass into useful chemicals, fuels and energy. BTG-RTD develops technologies for the (thermochemical) conversion of biomass and residues into a wide range of useful products like heat, power, biofuels, chemicals and materials. These technologies are in different stages of development ranging from R&D activities to commercial application.

BTG will facilitate a tour of their research facilities and introduce a number of ongoing biobased projects including;

- RoadToBio - BBI Initiative RoadToBio aims to deliver a roadmap and action plan illustrating the 'sweet spots' for Europe's chemicals industry towards the Bioeconomy over the coming decade, up to 2030.
- Bio4Products - Bio4Products will demonstrate an innovative two-step conversion method to transform straw, bark, forest residues and sunflower husks into renewable chemicals. The project will show how these sustainable resources can replace fossil material in a wide variety of end products.
- MAGIC - Marginal Lands for Growing Industrial Crops (MAGIC) aims to promote the sustainable development of resource-efficient and economically profitable industrial crops grown on marginal lands. These industrial crops can provide valuable resources for high added value products and bioenergy.

More info: <http://www.btgworld.com/en/>

<https://www.youtube.com/watch?v=PNG1by0JFjg>



Visit: Empyro Pyrolysis Oil Refinery

Company: BTG Liquids

Location: Hengelo

Description: BTG-BTL, a spinout of BTG operates a commercial-scale flash pyrolysis plant at the Akzo Nobel Chemical site in Hengelo. BTG-BTL has taken BTG's patented Rotating Cone Reactor fast pyrolysis technology and engineered it into a commercial industrial installation. The Empyro plant has produced a total of 15 million litres of Fast Pyrolysis Bio Oil (FPBO) since its start-up in 2015. The 5 tons/hr Empyro pyrolysis process converts up to 70 wt.% of lignocellulosic feedstock into pyrolysis oil and the remaining part into char and gas. The Empyro pyrolysis oil does in a few seconds, what takes nature millions of years. In a long-term agreement, the oil produced at Hengelo is sold to fuel Friesland Campina's new production site in Borculo, to generate steam for the production of milk powder. The boiler at Friesland Campina operates on both pyrolysis oil and natural gas. The excess heat which is produced by the combustion of pyrolysis char and non-condensable gases is captured as high pressure steam so it can be utilized in a steam turbine system. Some steam is used for electric power generation and feedstock drying but the excess steam is sold to the nearby Akzo Nobel site where it is used in the salt production process in an example of industrial symbiosis.

More info: www.btg-btl.com

<http://www.empyroproject.eu/>





Visit: Newfoss Green Biorefinery

Company: Newfoss B.V.

Location: Uden

Description: NewFoss has developed a disruptive innovation technology and business model in order to add-value to waste biomass streams, (i.e. natural and road side grass, agro residues) through patented sustainable refining technology. At it's plant in Zeeland, NewFoss has developed a unique 'mild extraction' technology for valorizing 100% of this biomass into solid and liquid platform fractions. These include NewFoss Fiber (NFF) with applications as a raw material for the paper & cardboard industry and NewFoss Liquid (NFL) for composting with potential as biogas and liquid fertilizer replacement, as well as a platform for polylactic acid (bioplastic) production.

The NewFoss extraction process:

- is based on utilization of underutilized resources
- Makes 100% of the biomass flow elements re-usable in beneficial applications;
- Does not require any expensive and energy consuming pre-treatment like high temperatures and pressure

More Info: <https://newfoss.com/en/>





Visit: Wageningen Biobased Productions Innovation Plant

Company: Wageningen FBR

Location: Wageningen

Description: The Biobased Products Innovation Plant is a large R&D facility used by WUR Biobased Researchers to develop innovative processes to convert green raw materials (biomass) into biobased products.

The goal of the plant is to accelerate the development of the Biobased Economy. Together with industrial partners, government and other research institutes, FBR focus on the development of sustainable and economically viable biobased chemicals, materials, fuels and biomass sources for bio-energy.

More info: <https://www.wur.nl/en/Expertise-Services/Research-Institutes/food-biobased-research.htm>





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