eseia
european sustainable energy innovation alliance

BAV
Bergischer Abfallwirtschaftsverband

Technology
Arts Sciences
TH Köln

Pilot Plant
Research Lab

17-19 October 2018

Organic-Waste Exploitation

:metabolon, Leppe Waste Disposal Centre, Lindlar-Remshagen, Germany

BioEnergyTrain

This project has received funding under the European Union´s Horizon 2020 research and innovation programme under grant agreement N° 656760

General Course Information

The 2018 Edition of the **Pilot Plant Research Lab** will take place between **17-19 October** at the :metabolon site in Germany. It will focus on **sustainable resource efficiency**, **material conversion** and **site-related environmental technologies and techniques.**

Participants will have the opportunity to experience how the regional material stream management exploits **unused regenerative energy sources**. Particular attention will be given to the **examination of supply, processing and conversion**. Participants will also be involved in the utilisation, and subsequent treatment, of **intermediate products**, including **how end-products are optimized.**

Course Programme

Day 1

- Presentation & site viewing of landfill Leppe at :metabolon
- Presentation of the :metabolon Research Centre
- Safety briefing for the use of the laboratory and pilot plant application
- Introduction to the pilot-scale plants:
    1. Biogas Plant
    2. Pellet and wood chip furnace
    3. Process Water Pilot Plant Leachate
- Preparation of experiments

Day 2 and 3

Experiments at the three pilot-scale plants with testing, laboratory analysis, and final evaluation and report.

Application Procedure

Registration

Register to the Pilot Plant Research Lab 2018 by filling out and submitting your application on the eseia ETP website.

Application Deadline: 26 September 2018

Expenses

Costs and organisation of arrival, departure and lodging in Lindlar is in the responsibility of the participants. Board will be organised for the participants and will cost approx. 10 EUR per meal. Course materials will be provided on site.

Pilot scale plants and Experiments

Biogas Pilot Plant

- Two-street pilot-scale plant with two digesters and one final storage tank with 1 m³ each equipped with online instrumentation for pH, ORP, TS and gas analysis for CH4, CO2, H2, and H2S;
- Fully automated for 24/7 operation;
- Currently fed with manure, maize and organic Municipal Solid Waste.

Participants will gather insights on the standard measurements and methods;analyse digester and substrate samples for different parameters; determine the parameters COD, NH4-N, DS,etc.; identify the differences between samples from fermenter and secondary fermenter, as well as the link between parameters and substrate feeding.

Leachate Process Water Pilot Plant

- The pilot scale plant (3,0 m³) for leachate treatment is used to reduce the amount of carbon compounds and nitrogen in the water leaking out of the landfill;
- The plant is designed in two lanes with three reactors for nitrification and denitrification in order to make it possible to compare different process strategies.

Participants will gather insights on the standard measurements and methods;analyse digester and substrate samples for different parameters; determine the parameters COD, NH4-N, DS,etc.; identify the differences between samples from fermenter and secondary fermenter, as well as the link between parameters and substrate feeding.

Pellet and Wood Chip Furnace

- Industrial furnace for heating with renewable fuels with 350kw, operated with pellets and wood chips as well as self-made pellets from bulking material, residues and digestate of oMSW and scrap wood.
- Equipped with sensors and online instrumentation for flame image analysis and innovative measurement system for improved mass balance study

Participants will gather insights on the standard measurements and methods; analyse digester and substrate samples for different parameters; determine the parameters COD, NH4-N, DS,etc.; identify the differences between samples from fermenter and secondary fermenter, as well as the link between parameters and substrate feeding.

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