2nd BIOFMET Stakeholders' Workshop

Workshop on metrology for biofuel industry

28-29 March 2023, PTB, Braunschweig, Germany

Tuesday, 28 of March

9:30-9:50	Reception of participants
9:50-10:00	**Welcome from the hosting institution** Welcome from Physikalisch-Technische Bundesanstalt. Kai Moshammer, PTB
10:00-10:30	**Introduction to the BIOFMET project and the concept of metrological traceability** The aim of the BIOFMET project is to optimize energy production based on solid and liquid biofuels through better measurements of key parameters impacting the calorific value using sound metrological methods. In this presentation the concept of metrological traceability and uncertainty of measurement is introduced and the objectives and key achievements of BIOFMET is presented. Jan Nielsen, DTI
10:30-11:00	**Automated biomass sampling before unloading** Automated sampler can collect representative samples directly from the truck load and train wagon before unloading. Timo Huotari, PROMETEC
11:00-11:30	Coffee break
11:30-12:00	**The influence of biomass characteristics and their uncertainties on the production of sustainable aviation fuel** A model was developed using Aspen PLUS for the process to evaluate the use of different biomass types, and studying the influence of their characteristics and uncertainty on the process performance and yield. Moaaz Shehab, PTB
12:00-12:30	**SI-traceable inline measurements of water content in biomass at CPH plants** The use of inline measurement systems for water-content determination at power and heating plants provides significant advantages, related e.g. to boiler design and operation. They also bring along a significant challenge related to calibration. In this presentation it is demonstrated how SI-traceable measurements can be realized in industry by calibrating using a transfer standard and/or the DTI reference method for water content. Henrik Kjeldsen, DTI
12:30-14:00	Lunch break

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14:00-14:30	**On-site moisture measurement with a resonant cavity** Experimental device that estimates the moisture content in solid materials by analysing the microwave spectrum in a cylindrical resonant cavity. Development of calibration curves to estimate moisture in solid biofuels - Measurements on industrial site. Bayan Tallawi, LNE-CETIAT
14:30-15:00	**Development of acoustic device to measure the moisture content** Experimental device that estimates the moisture content in wooden pellets and woodchips by measuring the power loss at acoustic resonance modes in cylindrical container. Description and results. Michal Voldán, CMI
15:00-15:30	**Microwave techniques to characterize impurity content in biofuels for on-line monitoring applications** Presentation of microwave measurement techniques to characterize the impurity content of biofuels. These techniques are based on the existence of dielectric contrasts between biofuels and its impurities. Pierre Sabouroux and Floriane Sparma, AMU
15:30-16:00	Coffee break
16:00-17:00	**Poster session** • The influence of biomass characteristics and their uncertainties on the production of sustainable aviation fuel, Moaaz Shehab, PTB • Production and Certification of BIOFMET Project Reference materials, Alper İşleyen, TUBITAK • Calibration on online equipment for water content in solid biofuels, Henrik Kjeldsen, DTI • Traceability of moisture measurements in solid biofuels, Eric Georgin, CETIAT • Principles of acoustic measurement of moisture, Libor Husník, CTU

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9:30-10:00	**Techniques for analysis of major elements in solid biofuels ash and establishment of results' traceability** In this work, conventional analysis techniques (ICP-OES, MP-AES) were used to characterize the ash composition for relevant elements, in order to establish traceability, i.e. to prepare standards for the calibration of fast field methods that work on the principle of fluorescence x-ray spectrometry. Katarina Hafner-Vuk, IMBiH
10:00-10:30	**Production and Certification of BIOFMET Project Reference materials** Details of the production from the planning phase, processing of candidate materials and their certification measurements (homogeneity, stability and characterization tests). Alper İşleyen, TUBITAK
10:30-11:00	Coffee break
11:00-11:30	**Data mining and its applicability to biofuel measurement data** Applicability of different algorithms and reliability in measured data. Michal Voldán, CMI
11:30-12:00	**Debye Technic - IC 210 Calorimeter Instrument** Introduction of Debye Technic. Introduction of the Calorimeter IC 210 device features. Patent application on hydrogen detection. Selin Heybeli, Debye Technic

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