

1st BIOFMET Stakeholders' Workshop

Workshop on measurements
of solid and liquid biofuel key parameters

2-3 June 2022, IST, Lisboa, Portugal

Thursday, 2nd of June

9:30-9:50	Reception of participants
9:50-10:00	Welcome from the hosting institution Welcome from Instituto Superior Técnico. Miguel Mendes and Raquel Segurado, IST
10:00-10:30	The BIOFMET Project The BIOFMET project is introduced, focusing on aims and expected impact on industry and standardization. Jan Nielsen, DTI
10:30-11:00	An improved procedure for the determination of biofuels' calorific value by bomb calorimetry An improved technical practice for the determination of the calorific value which focuses on limiting the sources of error during the measurements to assure minimum repeatability and uncertainty. Moazz Shehab, PTB
11:00-11:30	Coffee break
11:30-12:00	Water in solid biofuels: Accurate measurements, off-line and on-line Online measurements of water content in biofuels are challenging due to the inhomogeneity of the materials and the sources of errors that influence traditional techniques such as MW and NIR. The presentation will introduce our work on developing proper calibration techniques and thus securing reliable measurement results, e.g., in power plants. Henrik Kjeldsen, DTI
12:00-12:30	Reference techniques implemented at LNE-CETIAT After a short overview of moisture measurement techniques for solid materials, the presentation will focus on reference methods implemented at LNE-CETIAT, namely, a comparison performed between EWV and CKF. Eric Georjin, LNE-CETIAT
12:30-13:00	Development of acoustic hygrometer at CMI A prototype of an acoustic hygrometer is under development at CMI for one year. Principles of operation, current condition, and latest work results will be presented. Michal Voldán, CMI
13:00-14:30	Lunch break

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14:30-15:00	<p>Transfer standard developed at LNE-CETIAT</p> <p>LNE-CETIAT worked for several years on moisture measurement techniques namely based on microwave and radio-frequency. The introduction will present the interest of such method, and then the latest achievements obtained within the BIOFMET project will be presented.</p> <p>Bayan Tallawi and Eric Georgin, LNE-CETIAT</p>
15:30-16:00	<p>Online radio frequency characterisation of water content in liquid biofuels</p> <p>The propagation of microwaves in a material depends on the value of the permittivity. In the case of a liquid ethanol/water mixture, the permittivity depends on the amount of water. The multi-probe sensor is based on this observation. The microwave tests carried out on a prototype cell of reduced dimensions make it possible to envisage the integration of such a device in a production line.</p> <p>Pierre Sabouroux and Floriane Sparma, AMU</p>
16:00-16:30	<p>Coffee break</p>
16:30-17:30	<p>Poster session</p> <ul style="list-style-type: none"> • Improved metrological methodologies to address the challenges associated with the determination of biomass key parameters in the laboratory – calorific value, Moaz Shehab and Kai Moshammer, PTB • Preparation of solid biofuel sample materials for reference measurements, Helena Strauss, DTI • Development of traceable methods for the analysis of selected elements in solid biofuels as wooden material and ash, Katarina Hafner-Vuk, IMBiH • Calorific value measurements at TUBITAK UME, Kemal Özcan TUBITAK • Determination of impurity and residuals in solid and liquid biofuels, Alper İşleyen, TUBITAK • Reference Materials, Alper İşleyen, TUBITAK • Sampling: Equipment, test, validation and demonstration, Timo Huotari, PROMETEC • Acoustic measurement of moisture, Libor Husník, CTU

Friday, 3rd of June

9:30-10:00	<p>Test and validation of a fully automated sampling system for solid biofuels</p> <p>The sampling process is often the largest contributor to measurement uncertainty for the measurement of water content and calorific values of solid biofuels. Here we present a comprehensive comparative analysis of different sampling methods: By truck driver, according to the standard EN ISO 18135:2017 and using a fully automated sampling system.</p> <p>Henrik Kjeldsen, DTI</p>
10:00-10:30	<p>Proper Selection and Use of Reference Materials</p> <p>Alper İşleyen, TUBITAK</p>
10:30-11:00	<p>The use of AI/ML for improved online moisture measurement</p> <p>Work package 3 of BIOFMET will be introduced. Various ways of advanced data science approach to data measurement will be discussed. Software tools used by CMI and several output examples will be shown.</p> <p>Radek Strnad, CMI</p>
11:00-11:30	<p>Coffee break</p>
11:30-12:00	<p>45 years of experience in building systems for energy production</p> <p>TBD, Torbel</p>
12:00-12:30	<p>An advanced biorefinery concept</p> <p>Sérgio Silva, Bio Green Woods</p>
12:30-13:00	<p>Wrap-up</p>

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