

1st BIOFMET Stakeholders Workshop

Workshop on measurements of solid and liquid biofuel key parameters

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Scope of the workshop

- Present the work of BIOFMET project and offer an open forum for discussion,
- New metrological methods for biofuel materials analysis, funded by the EMPIR programme from EURAMET,
- Importance of the knowing the biofuel characteristics to support the optimisation of their combustion (higher efficiencies and lower emissions),
- Objective - Research **online** metrological methods for analysis of solid and liquid biofuels, to provide a metrological framework, including determination of the **calorific value** and quantification of **impurities** for validation of the developed methods, ensuring traceability of online instrumentation.

Day 1 – 2 June 2022 - Morning

- 10:00 The BIOFMET Project, Jan Nielsen, DTI
- 10:30 An improved procedure for the determination of biofuels' calorific value by bomb calorimetry, Moaaz Shehab, PTB
- **11:00-11:30 Coffee break**
- 11:30 Water in solid biofuels: Accurate measurements, off-line and on-line, Henrik Kjeldsen, DTI
- 12:00 Reference techniques implemented at LNE-CETIAT, Eric Georgan, LNE-CETIAT
- 12:30 Development of acoustic hygrometer at CMI, Michal Voldán, CMI

Day 1 – 2 June 2022 - Afternoon

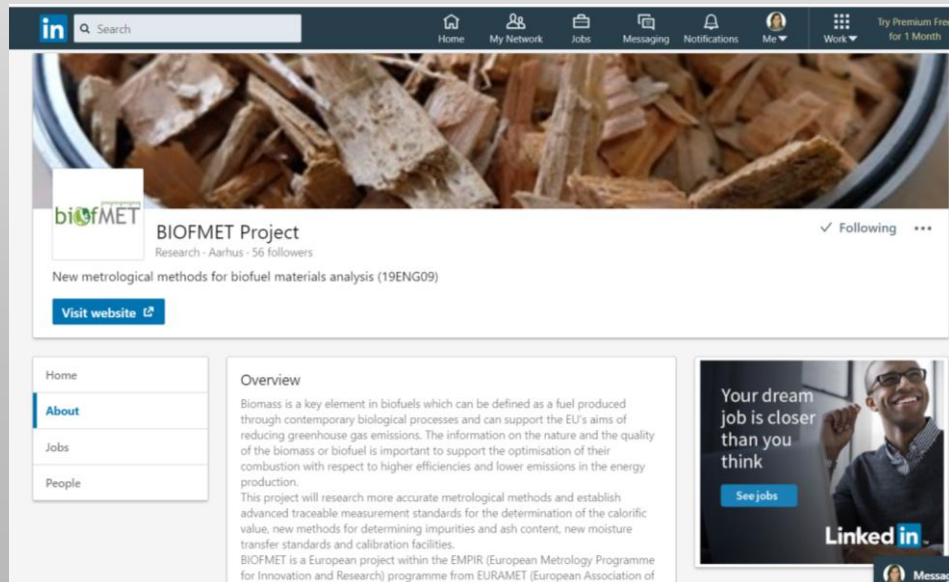
- **13:00-14:30 Lunch**
- 14:30 Transfer standard developed at LNE-CETIAT, Bayan Tallawi and Eric GeorGIN, LNE-CETIAT
- 15:30 Online radio frequency characterisation of water content in liquid biofuels, Pierre Sabouroux and Floriane Sparma, AMU
- **16:00-16:30 Coffee break**
- 16:30-17:30 Poster session

Day 2 – 3 June 2022 - Morning

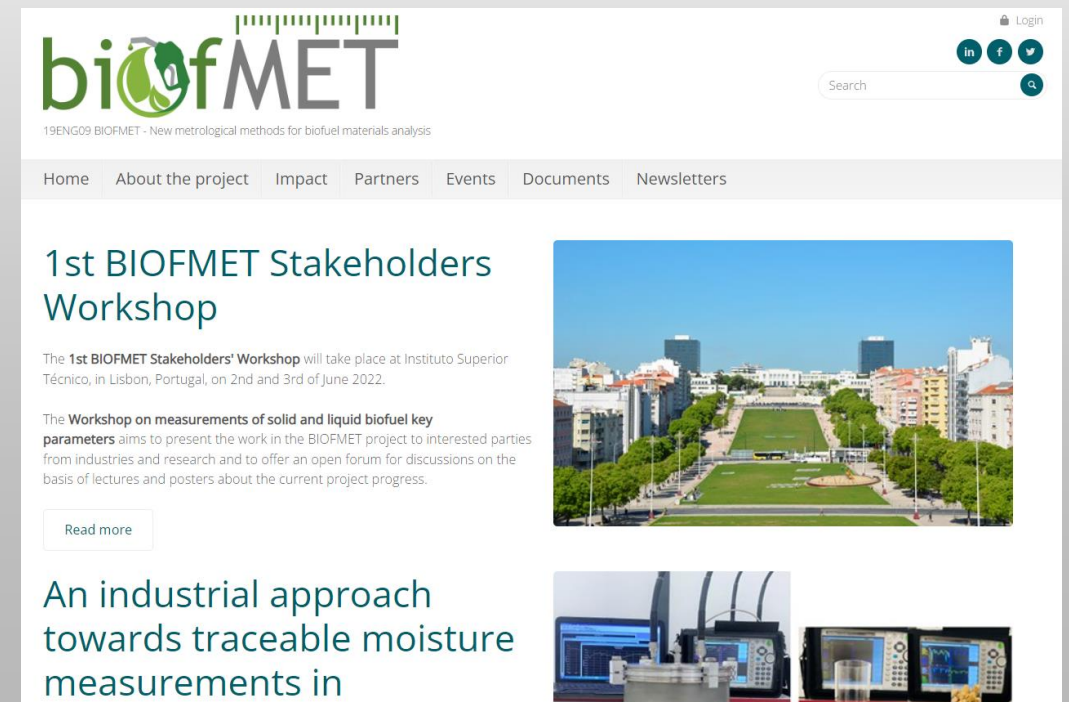
- 9:30 Test and validation of a fully automated sampling system for solid biofuels, Henrik Kjeldsen, DTI
- 10:00 Proper Selection and Use of Reference Materials, Alper İşleyen, TUBITAK
- 10:30 The use of AI/ML for improved online moisture measurement, Radek Strnad, CMI
- **11:00-11:30 Coffee break**
- 11:30 45 Years of Experience in Engineering, Manufacturing and Installing Thermal Energy Systems, Miguel Horák, Torbel
- 12:00 An advanced biorefinery concept, Sérgio Silva, Bio Green Woods

BIOFMET Web platform

- Webpage: www.biofmet.eu
- Follow our LinkedIn page: www.linkedin.com/biofmet



The screenshot shows the LinkedIn profile for the BIOFMET Project. The profile picture is a bowl of wood chips. The bio states: "BIOFMET Project, Research - Aarhus - 56 followers, New metrological methods for biofuel materials analysis (19ENG09)". A "Visit website" button is visible. The "Overview" section contains text about biomass and the project's goals, and a "See jobs" button. A LinkedIn advertisement is also present at the bottom right of the profile view.



The screenshot shows the BIOFMET website. The header includes the logo and navigation links: Home, About the project, Impact, Partners, Events, Documents, Newsletters. A search bar is located in the top right. The main content area features a large article titled "1st BIOFMET Stakeholders Workshop" with a sub-headline "An industrial approach towards traceable moisture measurements in". The article text describes the workshop's location and purpose. A "Read more" button is provided. Below the article is a photograph of a city street with a large green lawn in the foreground. At the bottom, there is a photograph of laboratory equipment.

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GET INVOLVED!

Biofuel industry stakeholders are aware of the difficulties of sampling and measuring energy content and other parameters of solid and liquid biofuels. This is a crucial issue to assess the real quality of the biofuel and its fair market cost. Biofuel producers, biofuel users and research and metrology facilities are invited to engage in BIOFMET, actively participating in the project's activities, providing feedback, and having a privileged access to its results.

In June 2020, the project 19ENG09 BIOFMET, funded by the EMPIR (European Metrology Programme for Innovation and Research) programme from EURAMET (European Association of National Metrology Institutes), began.

The overall goal of the project is to research online metrological methods for analysis of solid and liquid biofuels, to provide a metrological framework, including determination of the calorific value and quantification of impurities for validation of the developed methods, ensuring traceability of online instrumentation.

This project brings together seven of the leading national metrology institutes (NMI) and designated institutes (DI) working in this field and having broad experience and expertise in physical and chemical metrology - DTI (Teknologisk Institut - coordinator), Physikalisch-Technische Bundesanstalt (PTB), Centre Technique des Industries Aéronautiques et Thermiques (CETIAT), Türkiye Bilimsel ve Teknolojik Araştırma Kurumu (TUBITAK), Český Metrologický Institut (CMI), Institut za mjeriteljstvo Bosne i Hercegovine and BRML (Birouul Roman de Metrologie Legală). Two renowned universities - IST (Instituto Superior Técnico) and CTU (České Vysoké Učení Technické v Praze) - participate, one specialist in photonics, electromagnetism, signal and image processing - AMU (Université d'Aix-Marseille) - and two biomass industrial partners - VERDO, PROMETEC.



Welcome to the second newsletter of the European EMPIR project BIOFMET, whose overall goal is to research online metrological methods for analysis of solid and liquid biofuels, to provide a metrological framework, including determination of the calorific value and quantification of impurities for validation of the developed methods, ensuring traceability of online instrumentation. This project brings together seven of the leading national metrology institutes (NMI) and designated institutes (DI) working in this field and having broad experience and expertise in physical and chemical metrology - DTI (Teknologisk Institut - coordinator), PTB (Physikalisch-Technische Bundesanstalt), CETIAT (Centre Technique des Industries Aéronautiques et Thermiques), TUBITAK (Türkiye Bilimsel ve Teknolojik Araştırma Kurumu), CMI (Český Metrologický Institut), IMBIH (Institut za mjeriteljstvo Bosne i Hercegovine) and BRML (Birouul Roman de Metrologie Legală). Two renowned universities - IST (Instituto Superior Técnico) and CTU (České Vysoké Učení Technické v Praze) - participate, one specialist in photonics, electromagnetism, signal and image processing - AMU (Université d'Aix-Marseille) - and two biomass industrial partners - VERDO, PROMETEC.

GET INVOLVED!

Biofuel industry stakeholders are aware of the difficulties of sampling and measuring the energy content and other parameters of solid and liquid biofuels. This is a crucial point when it comes to the actual assessment of the biofuels' quality and their resulting market



Welcome to the third newsletter of the European EMPIR project BIOFMET, whose overall goal is to research online metrological methods for the analysis of solid and liquid biofuels, to provide a metrological framework, including the determination of the calorific value and quantification of impurities for validation of the developed methods, ensuring traceability of online instrumentation. This project brings together seven of the leading national metrology institutes (NMI) and designated institutes (DI) working in this field and having broad experience and expertise in physical and chemical metrology - DTI (Teknologisk Institut - coordinator), PTB (Physikalisch-Technische Bundesanstalt), CETIAT (Centre Technique des Industries Aéronautiques et Thermiques), TUBITAK (Türkiye Bilimsel ve Teknolojik Araştırma Kurumu), CMI (Český Metrologický Institut), IMBIH (Institut za mjeriteljstvo Bosne i Hercegovine) and BRML (Birouul Roman de Metrologie Legală). Two renowned universities - IST (Instituto Superior Técnico) and CTU (České Vysoké Učení Technické v Praze) - participate, one specialist in photonics, electromagnetism, signal and image processing - AMU (Université d'Aix-Marseille) - and two biomass industrial partners - VERDO, PROMETEC.

Thank you!

