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<https://belenus-project.eu/>

# **1<sup>st</sup> Workshop on “Lowering Costs by Improving Efficiencies in Biomass Fueled Boilers: New Materials and Coatings to Reduce Corrosion”**

## **Workshop: 4th of October 2022**

We are delighted to offer you the opportunity to attend a one-day workshop and a one-day young school within the framework of the European Project of "**Lowering Costs by Improving Efficiencies in Biomass Fueled Boilers: New Materials and Coatings to Reduce Corrosion**".

**The workshop and young school will be held at VTT, Espoo, Finland on the 4th and 5th of October 2022, respectively.**

**The BELENUS project** <https://belenus-project.eu/> was funded by the EU Horizon 2020 program and started in April 2019. BELENUS brings novel corrosion prevention approaches to achieve cost-effectiveness for biomass plants involving the whole value chain. The ambitious goal proposed by BELENUS is sustained by the achievement of 3 technological breakthroughs which constitute the technological pillars, focused on preventing corrosion and increasing in performance and reliability of small and medium combined heat and power (CHP) biomass plants: [1] biomass highly-corrosion resistant coatings and lower base materials presently under development; [2] strategies of welding and bending for improving quality and efficiency of boiler components; [3] online corrosion monitoring.

This workshop aims to disseminate project results and to bring together the main actors of the industry, plant owners and researchers related to the topic of material and component degradation in the Biomass field. The Young Researchers Training School not only aims to disseminate project results but also to show up materials and processes against corrosion for different industrial applications. We hope that you will be able to attend and look forward to your input and views on the challenge of enhancing the lifetime of industrial plant components

**Please sign up no later than 30.9.**

## AGENDA WORKSHOP:4th OF OCTOBER 2022

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9:00 **Greetings from VTT**, *Dr Tarja Laitinen, Research Area Vice President, Knowledge Driven Design, Sustainable Products and Materials.*

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9:10 **BELENUS project overview** *Dr. F. Javier Pérez Trujillo, UCM*

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09:25 **Biomass fuels**

- *Material related challenges in biomass combustion (Dr Hanna Kinnunen, Valmet Technologies Oy) (9.25)*
  - *Materials selection for a new biomass fired boiler; Owner's point of view(Dr Katri Ekholm, Helen Ltd (9.45)*
  - *Biomass characterization of fuels used in Belenus Project (Dr. Manuel Benito González, CIEMAT, Spain) (10.05)*
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10:25 Coffee break

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11:00 **Biomass corrosion-resistant coatings**

- *Advances in Anti-Corrosion Coatings and their medium-term corrosion behavior in biomass atmosphere (Dr Pauline Audigie, INTA, Spain) (11.00)*
  - *Coating processes for improvement of corrosion resistance (Dr Francisco Gonçalves, TEandM, Portugal) (11.20)*
  - *New FeCrAl materials for boiler environments (Dr Johanna Nockert, Kanthal, Sweden) (11.40)*
  - *Laboratory investigation of bulk/coatings in simulated biomass environment (Dr. Vincent, Chalmers University of Technology, Germany) (12.00)*
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12:20 **Modelling materials, new welding and bending strategies.**

- *Predicting oxide phases and oxidation kinetics observed in the laboratory investigation (Dr Torbjörn Jonsson, Chalmers University of Technology, Sweden) (12.20)*
  - *Tensile Properties Investigation of Coated and Uncoated 12%Cr Steel Using a Thermophysical Simulation System (Dr Fabian Dittrich, Technical University of Munich, Germany) (12.40)*
  - *HAZ Simulation, Melting and Bending Investigation of Coated and Uncoated 12%Cr Steel" (Dr Peter Mayr, Technical University of Munich, Germany) (13.00)*
  - *Lifetime prediction approach applying experimental and modelling data from the Belenus project (Dr. Janne Pakarinen, VTT (13.20)*
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13:40 Lunch

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14:40 **Visit VTT facilities**

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15:40 **Pre-validation (pilot scale) and testing at real plant conditions**

- *Fireside Corrosion Probes and Trial Coated Tube Exposures in Biomass Fired Power Plant Boilers, Dr Colin Davis, UNIPER, United Kingdom). (15.40)*
  - *Preventive Maintenance: On-line Corrosion Monitoring System (Dr Francisco Javier Pérez Trujillo, UCM (16.00)*
  - *Biomass Pilot Plant testing: Fluidized bubbling bed conditions influence (Dr Alberto Bahillo, CIEMAT) (16.20)*
  - *Investigating the erosive wear of boiler tubes from an operator's view (Dr Simon Heckmann, RWE, Germany) (16.40)*
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17:00 Coffee break

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17:15 **Discussion session: new perspectives in biomass technology**

*Set of central questions which are discussed by the group.*

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18:00 **Closure of the workshop**

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## The venue:

Teknologian Tutkimuskeskus VTT Oy,

Kivimiehentie 3, 02150 Espoo, Finland

[Teknologian tutkimuskeskus VTT Oy - Google Maps](#)

