

20IND13

Sustainable advanced flow meter calibration for the transport sector

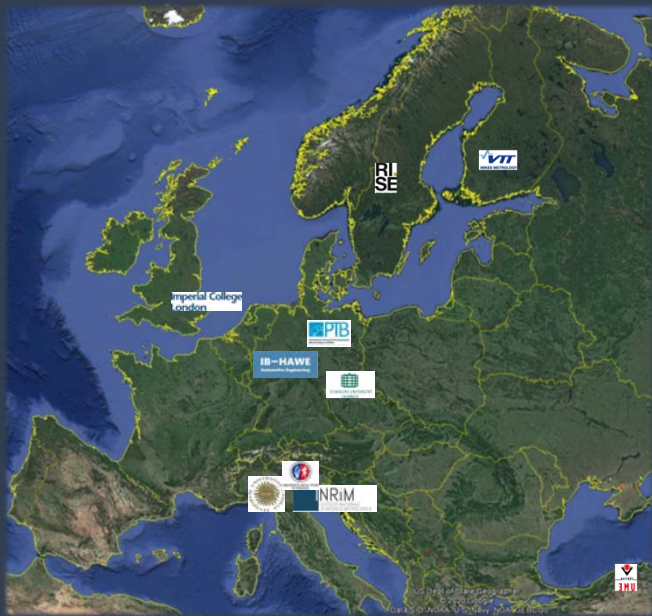




Webinar

20 February 2023



Consortium



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+ collaborators



Decarbonising transport in Europe to 2050



Transformation towards a sustainable mobility

- 32 %** of the EU's greenhouse gas emitted by transport in 2019, of which
- 72 %** caused by road transport
- 18 %** of all CO₂ emissions worldwide due to shipping in the European Economic Area



Decarbonisation

Fuel savings

Use of renewable energy carriers

Not one solution, but

- application specific
- time scale dependent

improved
fuel consumption determination
=
reduced
measurement uncertainty



Establishing a metrological infrastructure for
an
integral characterization of flow meters
ensuring
reliable fuel consumption measurements in
road and maritime transport



- **Enabling reliable fuel consumption measurements in road and maritime transport by**
 - establishing new capabilities for traceable calibrations under dynamic flow conditions in accordance with test cycles / real consumption characteristics
 - estimating effects of operating conditions on flow meter performance and the associated uncertainty
 - providing insights into the suitability of the Reynolds number approach to transfer calibrations between different liquids
 - providing a validated numerical tool to support insights into the interaction between test liquid and flow meter performance

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- **Addressing transport properties of alternative and synthetic fuels by**

- providing a fuel property matrix
- providing two well characterized test liquids for use as substitute fuels for flow meter evaluations and inter-comparisons
- providing advanced means to measure in-situ density and viscosity of fuels

- **Impact**

- engaging with stakeholders to facilitate the take up of the project outputs and provision of input into relevant standardization bodies
- providing guidelines

Aspects addressed:

- performance of flow meters under dynamic flow changes - development of metrological infrastructure and test regimes
- effects of operation conditions (e.g. temperature, viscosity)
- calibrations with different fluids and at different temperatures
- density and viscosity of alternative and synthetic fuels
- advanced means to measure in-situ density and viscosity of fuels

▪ Presentations

- H. Warnecke: Realisation and measurement of dynamic flow changes
- O. Bükér: Enabling reliable fuel consumption measurements: Effects of operation conditions
- S. Klink. Density and viscosity of alternative fuels
- Ch. Canale: The DP numerical model

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Sustainable
advanced
flow meter
calibration for
the transport
sector

*Supporting
the future*

Acknowledgement

This project (EMPIR JRP 20IND13 SAFEST) has received funding from the EMPIR programme co-financed by the Participating States and from the European Union's Horizon 2020 research and innovation programme.”

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