

Metrology for biomethane

Advancement of metrological framework and standardisation of test methods for biomethane quality assessment

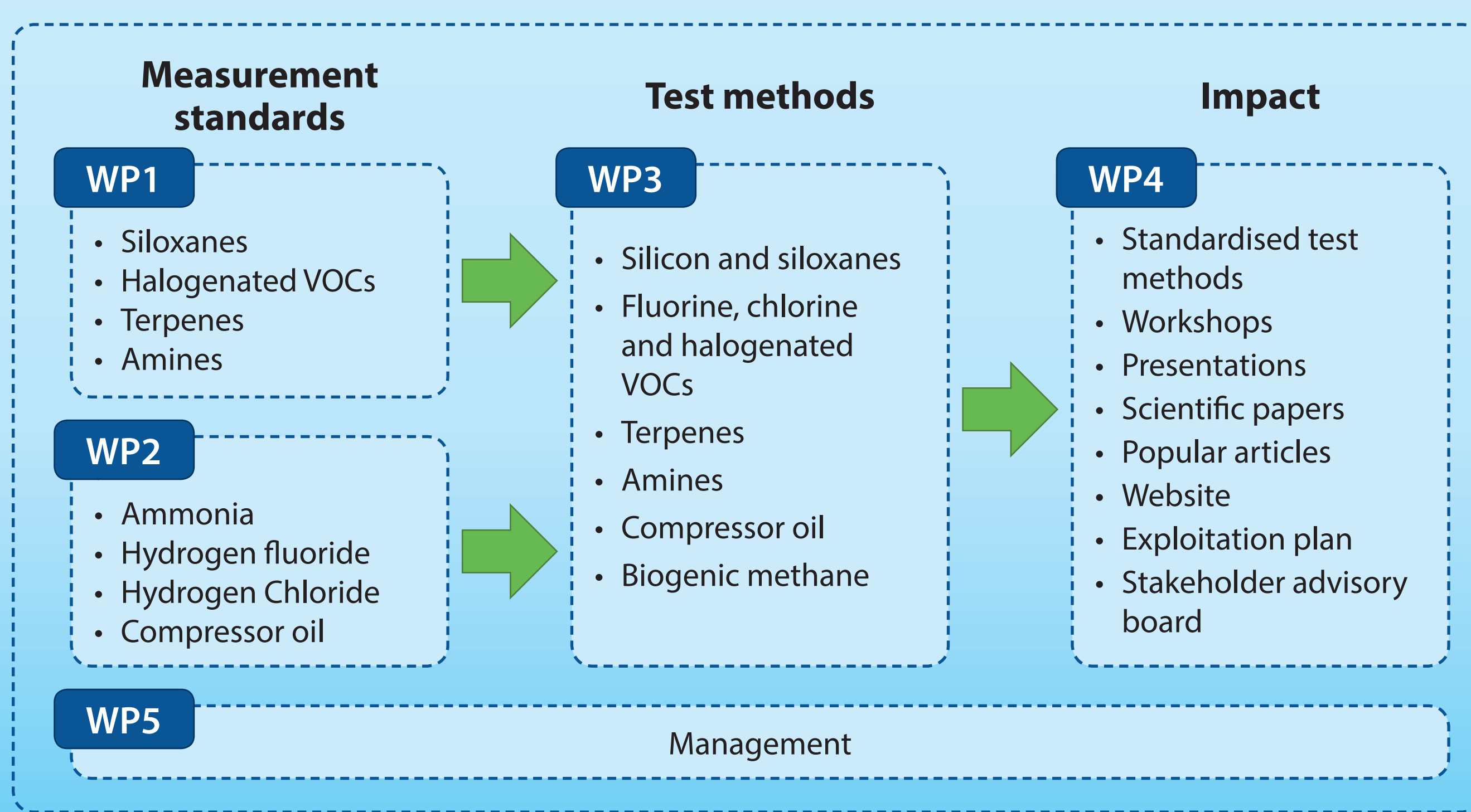
Need and drivers

- European renewable energy targets: 20% of EC energy consumption is to come from renewable sources by 2020.
- Under EC Mandate M/475, CEN PC/408 is developing specifications for biomethane (prEN 16723).
- Currently, the test methods cited in prEN 16723 are neither harmonised nor validated, lack traceability, and are usually not dedicated to biomethane.
- Regulators, grid and refuelling station owners, and testing laboratories urgently require harmonised and validated test methods to enable the integration of biomethane within existing natural gas measurement infrastructure.
- This will enable parties to meet contractual obligations, consumer protection and safety requirements.



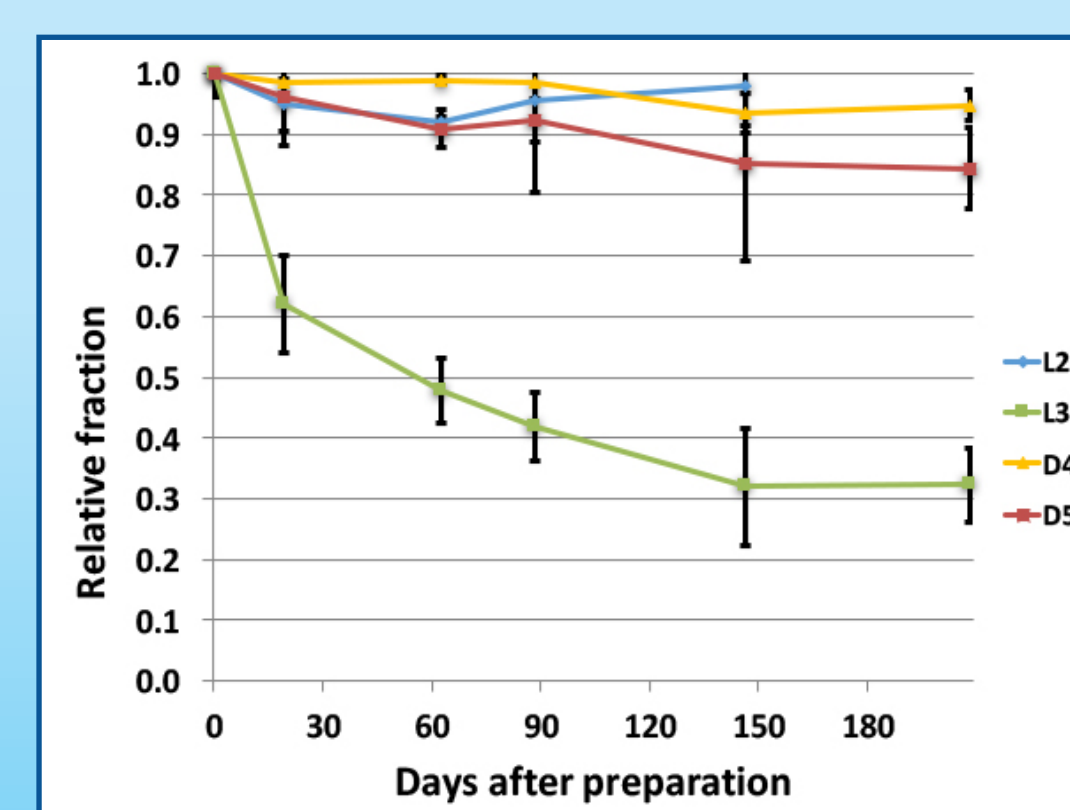
Objectives

- To develop robust, standardised test methods, and develop both novel and improved reference standards to meet urgent industry needs.

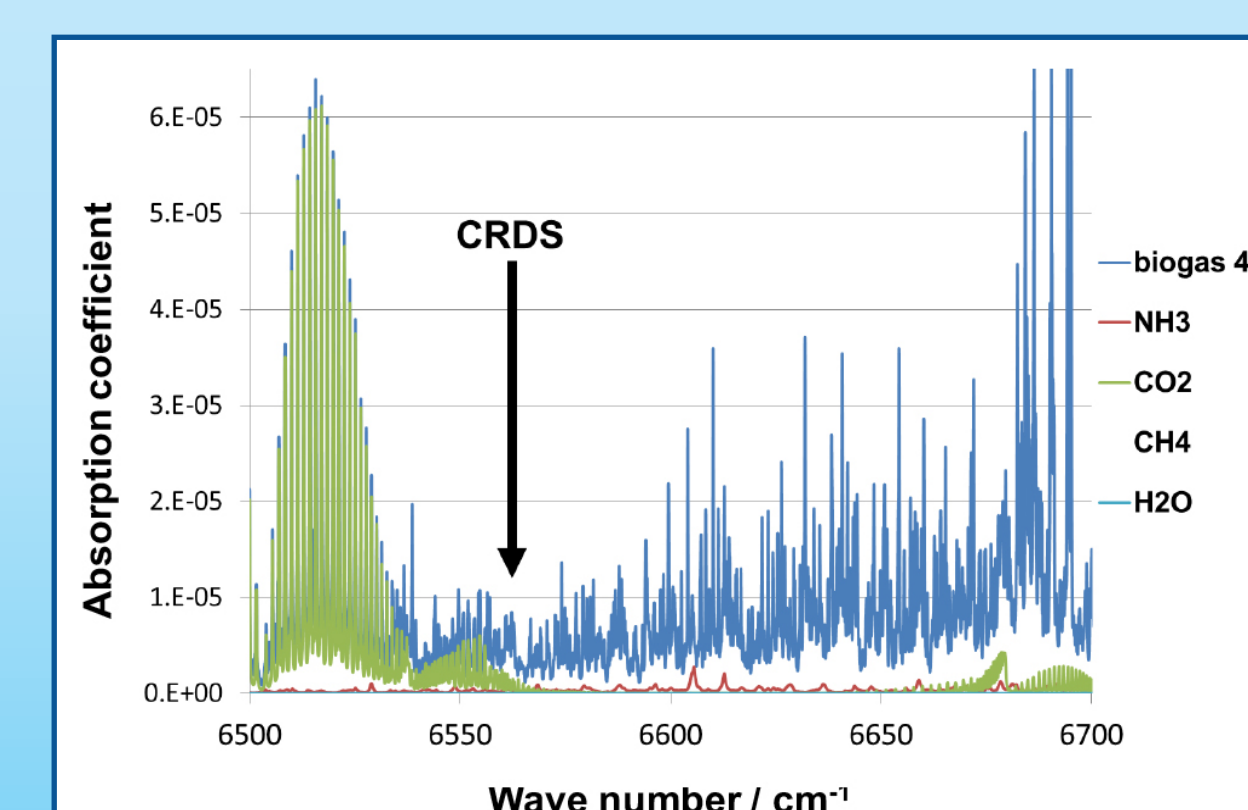


Beyond the state of the art

- Novel reference standards and measurement methods for hydrogen fluoride, amines, compressor oil and terpenes, in biomethane for which such standards do not exist.
- Significant improvement in stability of existing static reference standards through passivation testing to quantify interactions of biomethane impurities.
- Development of novel dynamic reference standards for new biomethane matrices, with an expanded uncertainty of <1% to eliminate instrument matrix bias.



Stability of siloxane reference standards require improvement to meet industry needs



Interferences within existing measurement techniques require investigating

Impact

Biogas and natural gas industry

- Significant contribution to the implementation of the specifications for biomethane for injection into the natural gas grid (prEN 16723-1) and for use as transport fuel (prEN 16723-2).
- Provides standardised test methods, allowing laboratories to obtain accreditation to ISO/IEC 17025 and to provide services.

Metrological and scientific communities

- Will complete the suite of standards and methods required to deliver calibrations, certified reference materials and measurement services.

Standards

- Standardisation of test methods, enabling ISO/TC193 to develop related documentary standards.
- Documentary standards will enable CEN, under its mandate M/475, to update the prEN 16723 with methods dedicated to biomethane.
- Enables ISO/TC 158 to further develop its documentary standards, for example ISO 6142 for use with gas mixtures of limited stability and the ISO 6145 series for use with energy gases.

Stakeholder support

ISO/TC193 "The research detailed in this proposal is essential to provide a robust metrological infrastructure for the conformity assessment [of biomethane]."

SNAM RETE GAS "The research detailed in this proposal focuses on the key measurement challenges faced by the biogas and biomethane industry and delivery of the objectives would support the growth of the use of biomethane in Europe."

ISO/TC 158 "We are very interested in the project outcome, in particular in support of the further development of the methods for dynamic gas mixture preparation, which so far have mainly been used in air quality measurement."

European Biogas Association "EBA wants to express its support for developing and harmonising suitable measurement methods for biomethane"

SCANIA "As a leading company in development and production of HGVs, we believe that biomethane is a fuel with extremely good sustainability performance. Scania supports all work that benefits development of this fuel on the market"

LIQUIGAS "The project will make an important step towards the full development of the sector"

Energiforsk "Facilitating the quantification and monitoring of important impurities such as siloxanes, ammonia and VOCs would be of tremendous value to the industry"

Gasum "It is essential for Gasum to know and control the quality parameters of biomethane before access to gas grids, LNG networks and fuelling stations."

Creating impact

- Disseminate IP on methods through **standardisation committees**
- Interact with **industry** through the **Stakeholder Advisory Board, workshops, and publications in trade journals**
- Engage with **scientific community** through contributions to **conferences, scientific journals**
- All supported by a **project website** and presence in the **social media**



Consortium

The consortium brings together the expertise of six leading European NMIs in the characterisation of non-conventional energy gases, and six industry partners with an established track record.

