METROLOGY FOR BIOMETHANE

EMPIR EURAMET

The EMPIR initiative is co-funded by the European Union's Horizon 2020 research and innovation programme and the EMPIR Participating States

Workshop on conformity assessment of biomethane

Jointly organised by the project EURAMET EMPIR 16ENG05 "Metrology for Biomethane" and ISO/TC193/SC1/WG25 "Biomethane"

NEN, Vlinderweg 6, Delft, the Netherlands, 22-23 January 2019

Introduction

As European natural gas resources are declining, diversification of the European energy supply has become necessary. Biomethane is a sustainable and domestic available alternative to natural gas. To facilitate the use of biomethane in existing infrastructures (e.g., transmission and distribution grids and at refueling stations), CEN/PC 408 developed specifications (EN16723). Currently, the test methods cited in EN16723 are neither harmonised nor validated, lack aspects of metrological traceability, and are usually not specifically developed for biomethane. In response to this need, ISO/TC193 has formed a WG25 "Biomethane" to work on standardized methods.

In order to assess conformity with the EN16723 specifications and to provide further essential input to WG25 "Biomethane", the currently running European joint research project EURAMET EMPIR 16ENG05 – Metrology for biomethane, aims to develop standardised test methods for the groups of parameters (mainly impurities) to be monitored when injecting biomethane into the natural gas grids and when using it as a transport fuel. A further objective of this project is to develop or improve the measurement standards for these parameters, in order to enable SI-traceable calibration and accurate measurement results.

Objectives of the Workshop

The aim of the workshop is to collect ideas for the development of standardised test methods in support of the European specification for biomethane, EN 16723. The emphasis lies on preselecting measurement methods for the contents of (i) total silicon and siloxanes, (ii) total fluorine, chlorine and halogenates VOCs, (iii) terpenes, (iv) amines, (v) ammonia, and (vi) compressor oil, in biomethane, as well as for (vii) the biogenic methane content in blends of biogas and natural gas.

The two-day workshop is open to experts in the field of natural gas, biogas, and biomethane. The recommendations from the workshop will be used to further shape the work on-going in the project "Metrology for Biomethane" and in ISO/TC193/SC1/WG25 "Biomethane".

European Metrology Network (EMN)

We live in an energy transition period driven in Europe by the European Directives on renewable energy and by the ratification of the Paris agreement linked to climate change. These drivers strongly push towards energy diversification and towards use of more sustainable energy gas sources less dependent on import. This means that in the next decades we will have a complex energy mix, where energy gases such as natural gas and liquified natural gas, will be coexisting and interchanged with biogas/biomethane, hydrogen and any new emerging energy gas source or vector.

To address the measurement needs derived from this energy mix with an efficient and coordinated approach and to interface with the existing energy gases stakeholders platforms, a group of EU National Metrology Institutes have formed the European Metrology Network on

Energy Gases. This network supports the vision of a cross-cutting long-term strategy targeted to mobility, energy gas production, conversion, transmission, distribution and storage.

Tentative programme

22 January 2019

09:30 - 10:00 Registration + Coffee/ Tea

10:00 – 10:30 Opening events by NEN + VSL (Francoise de Jong and Marc Pieksma)

10:30 – 11:30 Special Introduction of European Metrology Network on Energy Gases (Annarita Baldan, VSL + Hans Arne Frøystein, EURAMET)

11:30 – 12:00 Goals of the Workshop (Jianrong Li, VSL)

12:00 – 13:00 Lunch

13:00 – 13:40 Status of EU biogas & biomethane sectors (Mieke Decorte, EBA)

13:40 – 14:10 Gas quality situation in Italy - gas (natural gas and biomethane) quality specifications, laws and how it is controlled (Alejandra Casola Lopez, Snam Rete Gas)

14:10 – 14:40 Activities on measurement of biogas and biomethane impurities at PSI (Serge Biollaz, PSI)

14:40 – 15:00 Coffee/ Tea break

15:00 – 16:20 Measurement techniques and test methods for measuring **total silicon and siloxanes** contents (Lucy Culleton, NPL + Rialda Kurtic, IMBiH + Tim Robinson, WAL + Open discussion)

16:20 – 17:20 Measurement techniques and test methods for measuring **fluorine, chlorine and halogenated VOCs** contents (Javis Nwaboh, PTB + Timo Rajamaki, VTT + Stefan Persijn, VSL + Open discussion)

17:30 Close of the day

23 January 2019

09:00 – 09:15 Registration + Coffee/ Tea

09:15 – 09:45 Activities on biogas and biomethane within Air Liquide (Martine Carré, Air Liquide)

09:45 – 10:30 Measurement techniques and test methods for measuring **amines** contents (Lorena Cuccia, GRTgaz + Jianrong Li, VSL + Open discussion)

10:30 – 10:45 Coffee/ Tea break

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10:45 – 12:00 Measurement techniques and test methods for measuring **ammonia** content (Lucy Culleton, NPL + Gabriele Migliavacca, ISSI + Open discussion)

12:00 – 13:00 Lunch

13:00 – 13:30 DNV GL's Common practices for the analysis of Biogas (Henk Top, DNV GL)

13:30 – 14:00 Advantages of online measurements of biogas contaminants (Mikko Weckström, Qualvista)

14:00 – 14:45 Measurement techniques and test methods for measuring **terpenes** contents (Béatrice Sanz, GRTgaz + Sergi Moreno, NPL + Open discussion)

14:45 – 15:30 Measurement techniques and test methods for the determination of **compressor oil** carryover (Oliver Buker, RISE + Francois Lestremau, INERIS + Open discussion)

15:30 – 15:45 Coffee/ Tea break

15:45 – 16:15 Test methods for the determination of **biogenic methane** content (Sanne Palstra, RUG + Open discussion)

16:15 – 16:45 Conclusions and recommendations

16:45 – 18:30 Close of the Workshop with social drinks