VSL
National Metrology Institute

Proficiency Test

Gas analysis:

Natural gas + H_2 (low caloric)

Many laboratories participate in Proficiency Tests (PT schemes). Measurement results from different laboratories are anonymously compared with each other to identify any deviations. The results in a PT will give you valuable insights into your laboratory's performance, ensure and even increase your quality, can be used as a reliable tool for quality and risk management and will meet the requirements of various accreditations and ISO/IEC 17025:2017.

VSL organizes PTs under the ISO/IEC 17043:2010 accreditation with the highest care. When organizing any PT, VSL will:

- provide a suitable gas mixture;
- compose a test protocol;
- deliver an independent assessment report;
- provide anonymous comparison of results;
- offer metrological and quality management support at request.

Selection of participants:
Available for laboratories working with international standards (e.g. ASTM D1945, GPA 2261, GPA 2286, ISO 6974, ISO 6976, ISO 17023) and all in house methods for Natural Gas + H_2 (low caloric) measurements.

Registration:
Please go to our website www.vsl.nl/en/services/proficiency-testing to complete the registration form.

Fee 2024:
€ 3.400,00 (excluding transport and VAT)
Transport 2024:
€ 250,00 (Benelux)
€ 500,00 (EU)
On request (outside EU)

Terms of payment:
Payment in advance. Invoice will be sent 1 month before the start of the PT. Payment is due within 30 days after invoice date.

Schedule:
The detailed planning will be provided at the start of PT. The start date can be found at our website.

About VSL

SL, the National Metrology Institute for The Netherlands, is a globally accredited PT provider (ISO/IEC 17043:2010, our scope reg. nr. R006).

Our independent proficiency tests cover a broad range of areas including pressure, mass, viscosity, temperature, electricity, length, chemical analysis, humidity and gas flow. Customers also ask VSL for advice and implementation of custom PTs.
We encompass all calibration capabilities across various technological fields listed in our extensive ISO/IEC 17025:2017 accredited calibration scope (reg.nr. K999) and our ISO 17034:2016 scope (reg. nr. P002).

PROF. TESTING RvA R 006 · CALIBRATION RvA K 999 · REFERENCE MAT. RvA P 002

For more information on VSL and our offer, please visit our website at www.vsl.nl/en/services/proficiency-testing Should you have any questions or wish to join our PTs, feel free to contact us.

Estimated number of participants:

Minimal 5 participants, maximal 15 participants
VSL reserves the right to cancel the PT in case the number of participants is smaller than anticipated. In that case, VSL will contact you to find a suitable solution.

Measurements protocol:

VSL will provide the protocol before the shipment of the cylinders.
Each participant will have 3 weeks to perform the calibration.

Evaluation:

For qualification of the participant results, *Z*-scores and E_n-numbers are calculated. Both are a measure for the relative distance from the reference value. In the calculation of the E_n-number the uncertainty stated by the participant is incorporated.

The *Z*-score is defined as: $$Z_i = \frac{x_i - X_{ref,i}}{s_R}$$

The E_n–number is calculated according to: $$E_n = \frac{x_i - X_{ref,i}}{\sqrt{U_{ref,i}^2 + U_{stat,i}^2}}$$

Confidentiality statement:

VSL keeps all data regarding the performance of individual participants, or groups of participants, strictly confidential. Data is accordingly protected and stored in areas on networks with restricted access. The relationship between results and the laboratories that submitted them will never be disclosed. Only the laboratory is granted access to its performance through the assigned code number.

Deliverables:

VSL will provide a natural gas sample for analysis and will deliver a test report including the anonymized measurement results of the comparison.

VSL

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Information about the artifact to be used:
Natural gas mixture, provided in a 5L aluminum cylinder with DIN 447-1 connection.

Natural gas (+H_2) composition range:

Component	Mol fraction range %
C_2H_6	0,25 - 11
C_3H_8	0,10 - 10
n-C_4H_{10}	0,03 - 0,7
i-C_4H_{10}	0,03 - 0,7
n-C_5H_{12}	0,02 - 0,8
iso-C_5H_{12}	0,02 - 0,8
n-C_6H_{14}	0,02 - 0,8
H_2	1,0 - 5,0
N_2	0,1 - 20
CO_2	0,2 - 20
CH_4	60 - 99,9

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