



National
Metrology
Institute

Proficiency Test

Gas analysis: Determination of natural gas composition

Many laboratories participate in Proficiency Tests (PT schemes) or interlaboratory comparisons (ILC). Measurement results from multiple laboratories are anonymously compared with each other to identify any deviations. The results 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.

When you participate in one of our PTs, we will performed with the highest care:

- We will make an artifact available
- We will formulate a testprotocol
- We will make a report
- We guarantee independence and anonomy
- If desired, we can assist with determine follow-up steps

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 composition measurements

Registration:

Please go to our website www.vsl.nl/en/services/proficiency-testing and fill in the registration form.

Fee:

€ 3,350.00 (excl. transport and VAT)

Transport

€ 250.00 (Benelux)

€ 500.00 (EU)

On request (outside EU)

Terms of payment:

Payment in advance. Invoice will be send 1 month before the start of the PT.
30 Days payments terms after invoice date

Schedule:

The PT round is sceduled to begin 1 October 2023. Registration is possible until 1 September, 2023.

About VSL

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

Our independent comparisons covers 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 comparisons. 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).



For more information on VSL and our offerings, please visit our website at <https://www.vsl.nl/en/services/interlaboratory-comparisons/>. Should you have any questions or wish to join our PTs, feel free to contact us.



Estimated number of participants:

Minimal 16 participants, maximal 24 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

Reference laboratory:

VSL, the National Metrology Institute for The Netherlands

Measurements protocol:

- VSL will provide the protocol before the shipment of the cylinders
- The participants 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 provide a natural gas sample for analysis.
- VSL will deliver an anonymous test report of the comparison.

VSL

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Information about the artifact to be used:

Synthetic natural gas mixture, provided in a 5L aluminum cylinder with DIN 447-1 connection. Mixtures are purchased at Scott Specialty Gases Netherlands B.V.,

Natural gas composition range:

Component	Range (% mol/mol)	Component	Range (% mol/mol)
C_2H_6	0.25 - 11	neo- C_5H_{12}	0.02 - 0.1
C_3H_8	0.1 - 10	iso- C_5H_{12}	0.02 - 0.8
iso- C_4H_{10}	0.03 - 0.7	n- C_5H_{12}	0.02 - 0.8
n- C_4H_{10}	0.03 - 0.7	n- C_6H_{14}	0.02 - 0.4
N_2	0.1 - 20	CH_4	60 - 99.9 (matrix)
CO_2	0.2 - 20		

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