

# Fact Sheet Proficiency Test

## Gas analysis: Pilot study - Composition of Biogas

Biogas is of increasing importance world wide as energy factor. It presents an environmentally-friendly alternative for natural gas and contributes to reducing the emission of greenhouse gases. The two mainstream approaches for producing biogas are fermentation and the gasification of biomass. This comparison is about the macro composition of biogas from fermentation. Such biogas is composed mainly of methane, nitrogen, and carbon dioxide, and also contains small amounts of oxygen and hydrogen.

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### Typical landfill biogas composition range:

Component	Range (% mol/mol)	Component	Range (% mol/mol)
CH <sub>4</sub>	40 – 75	H <sub>2</sub>	0.1 - 2
CO <sub>2</sub>	10 – 50	O <sub>2</sub>	0.1 - 1
N <sub>2</sub>	3 – 25		

The pressure in the cylinders will be approximately 4 MPa; cylinders of 5 dm<sup>3</sup> nominal volume will be used. The amount-of-substance fractions as obtained from the characterisation will be used as reference value. Each cylinder will have its own reference value and associated expanded uncertainty.

### Reference laboratory:

VSL, the Dutch National Metrology institute (traceability of the reference values to international measurement standards is guaranteed).

### Estimate number of participants:

Expected number of participants: 12

### Measurement protocol:

Will be provided by e-mail after shipment of the cylinders, participants has two weeks to perform the analysis.

### Evaluation:

Evaluation by  $E_r$  numbers and Z-scores against reference values determined by VSL.

All participants will receive a report and certificate of the interlaboratory comparison within four weeks after ending the comparison cycle.

### Accreditation:

This Proficiency Test is carried out in accordance with the requirements of ISO/IEC 17043. It is not yet part of VSL's scope of accreditation.

### 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."

### Fee & Schedule:

Contact us for specific schedule and fee details.

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### Requirement 5.9 ISO/IEC 17025:

*Assuring quality of testing and calibration results:* The laboratory will have quality control procedures for monitoring test validity and calibrations undertaken. This monitoring will be planned and validated and may include the following: *participation in interlaboratory comparisons or proficiency-testing programmes.* #