

Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER

State Secretariat for Economic Affairs SECO

Swiss Accreditation Service SAS

SCS Directory Accreditation number: SCS 0009

International standard: ISO/IEC 17025:2017

Swiss standard: SN EN ISO/IEC 17025:2018

Carbagas SA Laboratoire GPM Usine de Domdidier Vy d'Avenches 89 1564 Domdidier SWITZERLAND Head: Dr. Christelle Schenk

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Internet: http://carbagas.ch

Initial accreditation: 01.12.1987

Current accreditation: 23.06.2018 to 22.06.2023

Scope of accreditation see: www.sas.admin.ch

(Accredited bodies)

Scope of accreditation as of 16.10.2019

Calibration laboratory for amount-of-substance fraction in gas mixtures

Calibration and Measurement Capability (CMC)

Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty ± 1)	Remarks
Amount-of-substance fraction, matrix N ₂				ISO 6142:2006
Binary mixture of				
carbon monoxide (CO)	40•10 ⁻⁶ 500•·10 ⁻⁶ (mol/mol)		1,0 % rel	
	0,05•10 ⁻² 5•10 ⁻² (mol/mol)		0,5 % rel	
carbon dioxide (CO ₂)	5•10 ⁻² 15•10 ⁻² (mol/mol)		0,5 % rel	
propane (C ₃ H ₈)	100 •10 ⁻⁶ 2000 •10 ⁻⁶ (mol/mol)		0,5 % rel	
hexane (n - C ₆ H ₁₄)	50 •10 ⁻⁶ 1000 •10 ⁻⁶ (mol/mol)		0,5 % rel	
oxygen (O ₂)	1•10 ⁻² 25•10 ⁻² (mol/mol)		0,5 % rel	

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¹⁾ The given extended measurement uncertainty is the standard uncertainty of the measurement multiplied by an extension factor k = 2, which corresponds to a confidence level of about 95% for a normal distribution.

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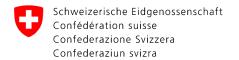
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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Uncertainty ± 1)	Remarks
Amount-of-substance fraction, matrix N ₂				ISO 6142:2006
Quaternary mixture of				
carbon monoxide (CO)	1,5•10 ⁻² (mol/mol)		1 % rel	
carbon dioxide (CO ₂)	11•10 ⁻² (mol/mol)		1 % rel	
propane (C ₃ H ₈)	600•10 ⁻⁶ (mol/mol)		1 % rel	
Amount-of-substance fraction			1a	ISO 6142:2006
Special gas mixtures	Max. 8 components and none with an amount-of-substance fraction less than 1•1 0 ⁻⁶ (mol/mol)		≥ 0,5 % rel	1b/2b
Amount-of-substance fraction				ISO 6142:2006
Synthetic mixtures of natural gas	26		1a	2a
Не	≥ 100•10 ⁻⁶ (mol/mol)		≥ 0,5 % rel	
CH ₄	≥ 60•10 ⁻² (mol/mol)			
N ₂	≥ 0,2•10 ⁻² (mol/mol)			
C ₂ H ₆	≥ 0,2•10 ⁻² (mol/mol)			
O ₂	≥ 0,1•10 ⁻² (mol/mol)			
CH₃OH	≥ 10•10 ⁻⁶ (mol/mol)			
H ₂ S	≥ 5•10 ⁻⁶ (mol/mol)			
CO ₂	≥ 500•10 ⁻⁶ (mol/mol)			
C ₃ H ₈	≥ 0,1•10 ⁻² (mol/mol)			
CH₃SH	≥ 1•10 ⁻⁶ (mol/mol)			
iC ₄ H ₁₀	≥ 500•10 ⁻⁶ (mol/mol)			
nC ₄ H ₁₀	≥ 500•10 ⁻⁶ (mol/mol)			
iC ₅ H ₁₂	≥ 5•10 ⁻⁶ (mol/mol)			
neoC ₅ H ₁₂	≥ 5•10 ⁻⁶ (mol/mol)			
nC ₅ H ₁₂	≥ 5•10 ⁻⁶ (mol/mol)			
nC ₆ H ₁₄	≥ 5•10 ⁻⁶ (mol/mol)			

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Number	Signification
1a	Measurement uncertainties per component for specific mixtures are provided on request by CARBAGAS.
1b	The measurement uncertainty includes a safety factor of 1,5.
2a	The maximal number of components in a synthetic mixture of natural gas is limited to 15. The components used are referenced in the list below with no more than 2 additional components not being listed. The latter must have an amount-of-substance fraction of $\geq 1 \cdot 10^{-6}$ (mol/mol).
2b	All mixtures containing reactive components (described in 4.2.3 and 4.2.4, ISO 6142:2006) are prepared by a method developed by the laboratory.

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