Schweizerische Eidgenossenschaft
Confédération suisse
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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

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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)	$40 \cdot 10^{-6}$ ... $500 \cdot 10^{-6}$ (mol/mol)		1,0 % rel	
	$0{,}05 \cdot 10^{-2}$ ... $5 \cdot 10^{-2}$ (mol/mol)		0,5 % rel	
carbon dioxide (CO_2)	$5 \cdot 10^{-2}$ ... $15 \cdot 10^{-2}$ (mol/mol)		0,5 % rel	
propane (C_3H_8)	$100 \cdot 10^{-6}$ ... $2000 \cdot 10^{-6}$ (mol/mol)		0,5 % rel	
hexane (n - C_6H_{14})	$50 \cdot 10^{-6}$ ... $1000 \cdot 10^{-6}$ (mol/mol)		0,5 % rel	
oxygen (O_2)	$1 \cdot 10^{-2}$ ... $25 \cdot 10^{-2}$ (mol/mol)		0,5 % rel	

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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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)	$1{,}5 \cdot 10^{-2}$ (mol/mol)		1 % rel	
carbon dioxide (CO_2)	$11 \cdot 10^{-2}$ (mol/mol)		1 % rel	
propane (C_3H_8)	$600 \cdot 10^{-6}$ (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	*2b*		*1a*	*2a*
He	≥ $100 \cdot 10^{-6}$ (mol/mol)		≥ 0,5 % rel	
CH_4	≥ $60 \cdot 10^{-2}$ (mol/mol)			
N_2	≥ $0{,}2 \cdot 10^{-2}$ (mol/mol)			
C_2H_6	≥ $0{,}2 \cdot 10^{-2}$ (mol/mol)			
O_2	≥ $0{,}1 \cdot 10^{-2}$ (mol/mol)			
CH_3OH	≥ $10 \cdot 10^{-6}$ (mol/mol)			
H_2S	≥ $5 \cdot 10^{-6}$ (mol/mol)			
CO_2	≥ $500 \cdot 10^{-6}$ (mol/mol)			
C_3H_8	≥ $0{,}1 \cdot 10^{-2}$ (mol/mol)			
CH_3SH	≥ $1 \cdot 10^{-6}$ (mol/mol)			
iC_4H_{10}	≥ $500 \cdot 10^{-6}$ (mol/mol)			
nC_4H_{10}	≥ $500 \cdot 10^{-6}$ (mol/mol)			
iC_5H_{12}	≥ $5 \cdot 10^{-6}$ (mol/mol)			
$neoC_5H_{12}$	≥ $5 \cdot 10^{-6}$ (mol/mol)			
nC_5H_{12}	≥ $5 \cdot 10^{-6}$ (mol/mol)			
nC_6H_{14}	≥ $5 \cdot 10^{-6}$ (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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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.