CERTIFICATE

of Product Conformity (QAL1)

Certificate No.: 0000028754_05

Certified AMS:	APMA 370 for CO
Manufacturer:	Horiba Ltd. 2 Miyanohigashi Kisshoin Minami-ku / Kyoto 610-8510 Japan
Test Institute:	TÜV Rheinland Energy & Environment GmbH

This is to certify that the AMS has been tested and found to comply with the standards VDI 4202-1 (2010), VDI 4203-3 (2010), EN 14626 (2012), as well as EN 15267-1 (2009) and EN 15267-2 (2023).

Certification is awarded in respect of the conditions stated in this certificate (this certificate contains 15 pages).
The present certificate replaces certificate 0000028754_04 dated 25 January 2021.

TÜVRheinland® CERTIFIED
Suitability Tested
Complying with 2008/50/EC
EN 15267
Regular Surveillance
www.tuv.com
ID 0000028754

Publication in the German Federal Gazette (BAnz) of 8 April 2006

German Environment Agency

Dessau, 22 January 2026

This certificate will expire on:
25 January 2031

TÜV Rheinland
Energy & Environment GmbH
Cologne, 21 January 2026

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Test institute accredited to EN ISO/IEC 17025 by DAkkS (German Accreditation Body).
This accreditation is limited to the accreditation scope defined in the enclosure to the certificate D-PL-11120-02-00.

Test report:	936/21204643/B dated 5 January 2006
Initial certification:	26 January 2011
Expiry date:	25 January 2031
Certificate:	Renewal (of previous certificate 0000028754_04 of 25 January 2021 valid until 25 January 2026)
Publication:	BAnz. 08 April 2006, No. 70, p. 2653, chapter IV No. 2.1

Approved application

The tested AMS is suitable for continuous immission measurement of CO in stationary use.

The suitability of the AMS for this application was assessed on the basis of a laboratory test and a three month field test.

The AMS is approved for an ambient temperature range of 0 °C to +40 °C.

The notification of suitability of the AMS, performance testing and the uncertainty calculation have been effected on the basis of the regulations applicable at the time of testing. As changes in legal provisions are possible, any potential user should ensure that this AMS is suitable for monitoring the measured values relevant to the application.

Any potential user should ensure, in consultation with the manufacturer, that this AMS is suitable for the intended use.

Basis of the certification

This certification is based on:

- Test report 936/21204643/B dated 5 January 2006 of TÜV Immissionsschutz und Energiesysteme GmbH
- Addenda 936/21204643/B1 dated 27 July 2011 and 936/21222689/B dated 5 October 2013
- Suitability announced by the German Federal Environment Agency (UBA) as the relevant body
- The ongoing surveillance of the product and the manufacturing process

Publication in the German Federal Gazette: BAnz. 08 April 2006, No. 70, p. 2653, chapter IV No. 2.1, Announcement by UBA dated 21 February 2006:

AMS designation:
APMA 370

Manufacturer:
HORIBA Ltd., Kyoto 610 - 8510, Japan
Distribution: HORIBA Europe GmbH, 42799 Leichlingen

Field of application:
For continuous ambient air monitoring of CO (stationary operation)

Measuring ranges during the performance test:

Component	Certification range	Supplementary measurement ranges	Unit
CO	0 – 60	0 – 100	mg/m³

Software version:
Version P1000878001C

Test institute:
TÜV Immissionsschutz und Energiesysteme GmbH, Cologne
TÜV Rheinland Group
Report No.:
936/21204643/B dated 5 January 2006

Publication in the German Federal Gazette: BAnz. 25. August 2009, Nr. 125, S. 2929, Chap. III notification 1, Announcement by UBA dated 3 August 2009:

1 Notification as regards Federal Environment Agency notice of 21 February 2006 (BAnz. p. 2655)

The latest software version of the APMA 370 ambient air measuring system manufactured by Horiba Europe GmbH is:
P1000878001J

The type GD-6 EH sample gas pump manufactured by Horiba may be used instead of the N 86 KNE sample gas pump manufactured by KNF.

Statement issued by TÜV Rheinland Immissionsschutz und Energiesysteme GmbH dated 31 March 2009

Publication in the German Federal Gazette: BAnz. 26. Januar 2011, Nr. 14, S. 294, Chap. IV notification 5, Announcement by UBA dated 10 January 2011:

5 Notification as regards Federal Environment Agency (UBA) notices of 21 February 2006 (BAnz. p. 2653, chapter IV number 2.1) and of 3 August 2009 (BAnz. p. 2929, chapter III notification 1)

The APMA 370 measuring system for CO manufactured by Horiba Ltd, Japan, and Horiba Europe GmbH meets the requirements defined in standard EN 14626. Furthermore, the manufacturing process and the quality management for the APMA 370 measuring system meet the requirements of EN 15267.
The performance test report is available online at www.qal1.de.

Statement of by TÜV Rheinland Energie und Umwelt GmbH dated 6 October 2010

Publication in the German Federal Gazette: BAnz. 02. März 2012, Nr. 36, S. 920, Chap. V notification 16, Announcement by UBA dated 23 February 2012:

16 Notification as regards Federal Environment Agency (UBA) notices of 21 February 2006 (p. 2653, chapter IV number 2.1) and of 10 January 2011 (BAnz. p. 294, chapter IV notification 5)

There is an addendum to test report No. 936/21204643/B for the APMA 370 measuring system for CO manufactured by Horiba, Ltd., Japan and Horiba Europe GmbH. The addendum is assigned report No. 936/21204643/B1 and after its publication is an integral part of the test report No. 936/21204643/B and is also available online at www.qal1.de.

Statement of by TÜV Rheinland Energie und Umwelt GmbH dated 3 November 2011

Publication in the German Federal Gazette: BAnz AT 05.03.2013 B10, Chap. V notification 7, Announcement by UBA dated 12 February 2013:

7 Notification as regards Federal Environment Agency (UBA) notices of 21 February 2006 (p. 2653, chapter IV number 2.1) and of 23 February 2012 (BAnz. p. 920, chapter V notification 16)

The APMA 370 measuring system for CO manufactured by Horiba Ltd, Japan, and Horiba Europe GmbH may optionally be equipped with an additional calibration port. Calibration gas may be fed upstream or downstream of the sample gas filter using a three-way valve.

Statement of by TÜV Rheinland Energie und Umwelt GmbH dated 11 October 2012

Publication in the German Federal Gazette: BAnz AT 01.04.2014 B12, Chap. VI notification 26, Announcement by UBA dated 27 February 2014:

26 Notification as regards Federal Environment Agency (UBA) notices of 21 February 2006 (p. 2653, chapter IV number 2.1) and of 12 February 2013 (BAnz AT 05.03.2013 B10, chapter V notification 7)

The APMA 370 measuring system for CO manufactured by Horiba Ltd, Japan and Horiba Europe GmbH meets the requirements defined in standard EN 14626 (December 2012 version).
An addendum as integral part of test report No. 936/21222689/B is available online at www.qal1.de.

Statement of TÜV Rheinland Energie und Umwelt GmbH dated 5 October 2013

Publication in the German Federal Gazette: BAnz AT 01.08.2016 B11, Chap. V notification 30, Announcement by UBA dated 14 July 2016:

30 Notification as regards Federal Environment Agency (UBA) notices of 21 February 2006 (p. 2653, chapter IV number 2.1) and of 27 February 2014 (BAnz AT 01.04.2014 B12, chapter VI notification 26)

The APMA-370 measuring system for CO manufactured by HORIBA Ltd. is equipped with a new display which, in design and functionality, largely corresponds to its predecessor. In addition, the power supply ZWS-BAF may also be used.

The current software version of the measuring system is:
P1000878001K

Statement of TÜV Rheinland Energie und Umwelt GmbH dated 29 February 2016.

Publication in the German Federal Gazette: BAnz AT 22.07.2019 B8, Chap. V notification 9, Announcement by UBA dated 28 June 2019:

9 Notification as regards Federal Environment Agency (UBA) notices of 21 February 2006 (BAnz. p. 2653, chapter IV number 2.1) and of 14 July 2016 (BAnz AT 01.08.2016 B11, chapter V notification 30)

The latest software version of the APMA-370 measuring system for CO manufactured by HORIBA Ltd. is:
P1000878001L

The rear of the housing was modified to cater for additional cable connections.

Statement of TÜV Rheinland Energy GmbH dated 5 March 2019

Publication in the German Federal Gazette: BAnz AT 24.03.2020 B7, Chap. IV notification 53, Announcement by UBA dated 24 February 2020:

53 Notification as regards Federal Environment Agency (UBA) notices of 21 February 2006 (p. 2653, chapter IV number 2.1) and of 28 June 2019 (BAnz AT 22.07.2019 B8, chapter V 9th notification)

The latest software version of the APMA-370 measuring system for CO manufactured by HORIBA Ltd. is:
P1000878001M

Statement issued by TÜV Rheinland Energy GmbH dated 20 September 2019

Publication in the German Federal Gazette: BAnz AT 03.05.2021 B9, Chap. III notification 35, Announcement by UBA dated 31 March 2021:

35 Notification as regards Federal Environment Agency (UBA) notices of 21 February 2006 (BAnz. p. 2653, chapter IV number 2.1) and of 24 February 2020 (BAnz AT 24.03.2020 B7, chapter IV notification 53)

The latest software version of the APMA-370 measuring system for CO manufactured by HORIBA Ltd. is:
P1000878001N.

Statement issued by TÜV Rheinland Energy GmbH dated 08 September 2020

Publication in the German Federal Gazette: BAnz AT 20.03.2023 B6, Chap. IV notification 71, Announcement by UBA dated 21 February 2023:

71 Notification as regards Federal Environment Agency (UBA) notices of 21 February 2006 (BAnz. p. 2653, chapter IV number 2.1) and of 31 March 2021 (BAnz AT 03.05.2021 B9, chapter III notification 35)

The current software version of the APMA-370 measuring system for CO from the company HORIBA Ltd. is:
P1000878001P
The measuring system can also be equipped with an LCD display of type TL-0267L2 from the manufacturer AUO.

Statement issued by TÜV Rheinland Energy GmbH dated 13 September 2022

Publication in the German Federal Gazette: BAnz AT 19.05.2025 B3, Chap. IV notification 77, Announcement by UBA dated 2 April 2025:

77 Notification as regards Federal Environment Agency (UBA) notices of 21 February 2006 (BAnz. p. 2653, chapter IV number 2.1) and of 21 February 2023 (BAnz AT 20.03.2023 B6, chapter IV notification 71)

The current software version of the APMA-370 measuring system for CO from HORIBA Ltd. is:
P1000878001Q

Statement issued by TÜV Rheinland Energy & Environment GmbH dated 26 September 2024

Certified product
This certificate applies to automated measurement systems conforming to the following description:

The APMA 370 CO-Analyser operates based on the principle of non-dispersal infrared absorption.

The measuring principle complies with the reference measuring method described in section 5.2 of Standard EN 14626 (2012). The attenuation of infrared light is measured after passing through the test cuvette. According to Lambert-Beer law, attenuation is a measure of the concentration of CO within the cuvette.

The APMA-370 measuring system uses the modulation effect of infrared absorption within the test gas itself if zero and test gas are led to the measuring cell at specific flow rates. The switch is made via a solenoid valve which is clocked at a frequency of 1 Hz. As long as the concentration of the measured component within the cell does not change, the output of the detector is practically zero. Thus, no zero drift occurs.

General notes

This certificate is based upon the equipment tested. The manufacturer is responsible for ensuring that on-going production complies with the requirements of the EN 15267. The manufacturer is required to maintain an approved quality management system controlling the manufacture of the certified product. Both the product and the quality management systems shall be subject to regular surveillance.

If a product of the current production does not conform to the certified product, TÜV Rheinland Energy & Environment GmbH must be notified at the address given on page 1.

A certification mark with an ID-Number that is specific to the certified product is presented on page 1 of this certificate. This certification mark may be applied to the product or used in advertising materials for the certified product.

This document as well as the certification mark remains property of TÜV Rheinland Energy & Environment GmbH. With revocation of the publication the certificate loses its validity. After the expiration of the certificate and on requests of the TÜV Rheinland Energy & Environment GmbH this document shall be returned and the certificate mark must not be employed anymore.

The relevant version of this certificate and its expiration is also accessible on the internet: **qal1.de**.

History of documents
Certification of APMA 370 is based on the documents listed below and the regular, continuous monitoring of the Quality Management System of the manufacturer:

Basic test
Test report: 936/21204643/B dated 5 January 2006
TÜV Immissionsschutz und Energiesysteme GmbH
Publication: BAnz. 08 April 2006, No. 70, p. 2653, chapter IV number 2.1
UBA announcement dated 21 February 2006

Notifications
Statement of TÜV Immissionsschutz und Energiesysteme GmbH dated 31 March 2009
Publication: BAnz. 25 August 2009, No. 125, p. 2929, chapter III notification 1
UBA announcement dated 3 August 2009
(Soft- and hardware changes)

Initial certification according to EN 15267
Certificate No. 0000028754_00: 9 February 2011
Expiry date of the certificate: 25 January 2016
Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 6 October 2010
Test report: 936/21204643/B dated 5 January 2006
Publication: BAnz. 26 January 2011, No. 14, p. 294, chapter IV number 5
UBA announcement dated 10 January 2011

Certificate based on a notification
Certificate No. 0000028754_01: 16 March 2012
Expiry date of the certificate: 25 January 2016
Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 3 November 2011
Test report: 936/21204643/B1 dated 27 July 2011
Publication: BAnz. 02 March 2012, No. 36, p. 920, chapter V number 16
UBA announcement dated 23 February 2012

Notifications
Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 11 October 2012
Publication: BAnz AT 05.03.2013 B10, chapter V notification 7
UBA announcement dated 12 February 2013
(Additional hardware)

Certificate based on a notification
Certificate No. 0000028754_02: 29 April 2014
Expiry date of the certificate: 25 January 2016
Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 5 October 2013
Test report: 936/21222689/B dated 5 October 2013
Publication: BAnz AT 01.04.2014 B12, chapter VI number 26
UBA announcement dated 27 February 2014

Renewal of certificates
Certificate No. 0000028754_03: 21 January 2016
Expiry date of the certificate: 25 January 2021

Notifications
Statement issued by TÜV Rheinland Energy GmbH dated 29 February 2016
Publication: BAnz AT 01.08.2016 B11, chapter V notification 30
UBA announcement dated 14 July 2016
(Soft- and hardware changes and new system name)

Statement issued by TÜV Rheinland Energy GmbH dated 5 March 2019
Publication: BAnz AT 22.07.2019 B8, chapter V notification 9
UBA announcement dated 28 June 2019
(Soft- and hardware changes)

Statement issued by TÜV Rheinland Energy GmbH dated 20 September 2019
Publication: BAnz AT 24.03.2020 B7, chapter IV notification 53
UBA announcement dated 24 February 2020
(Software changes)

Renewal of certificates
Certificate No. 0000028754_04: 25 January 2021
Expiry date of the certificate: 25 January 2026

Notifications
Statement issued by TÜV Rheinland Energy GmbH dated 8 September 2020
Publication: BAnz AT 03.05.2021 B9, chapter III notification 35
UBA announcement dated 31 March 2021
(Software changes)

Statement issued by TÜV Rheinland Energy GmbH dated 13 September 2022
Publication: BAnz AT 20.03.2023 B6, chapter IV notification 71
UBA announcement dated 21 February 2023
(Soft- and hardware changes)

Statement of TÜV Rheinland Energy & Environment GmbH dated 26 September 2024
Publication: BAnz AT 19.05.2025 B3, chapter IV notification 77
UBA announcement dated 2 April 2025
(Software changes)

Renewal of certificates
Certificate No. 0000028754_05: 22 January 2026
Expiry date of the certificate: 25 January 2031

Expanded uncertainty from the results obtained in the laboratory tests for analyser 1

Measuring device:	Horiba APMA 370	Serial-No.:	SN 10031		
Measured component:	CO	8h-limit value:	8.62	µmol/mol	

No.	Performance characteristic	Performance criterion		Result	Partial uncertainty		Square of partial uncertainty	
1	Repeatability standard deviation at zero	≤	0.3 µmol/mol	0.035	$u_{r,z}$	0.01	0.0001	
2	Repeatability standard deviation at 8h-limit value	≤	0.4 µmol/mol	0.064	u_r	0.00	0.0000	
3	"lack of fit" at 8h-limit value	≤	4.0% of measured value	0.700	u_l	0.03	0.0012	
4	Sensitivity coefficient of sample gas pressure at 8h-limit value	≤	0.7 µmol/mol/kPa	0.006	u_{gp}	0.02	0.0002	
5	Sensitivity coefficient of sample gas temperature at 8h-limit value	≤	0.3 µmol/mol/K	0.005	u_{gt}	0.01	0.0002	
6	Sensitivity coefficient of surrounding temperature at 8h-limit value	≤	0.3 µmol/mol/K	0.077	u_{st}	0.20	0.0398	
7	Sensitivity coefficient of electrical voltage at 8h-limit value	≤	0.3 µmol/mol/V	0.006	u_V	0.06	0.0030	
8a	Interferent H_2O with 21 mmol/mol	≤	1.0 µmol/mol (Zero)	0.233	u_{H2O}	0.02	0.0003	
		≤	1.0 µmol/mol (Span)	-0.009				
8b	Interferent CO_2 with 500 µmol/mol	≤	0.5 µmol/mol (Zero)	0.017	$u_{int,pos}$		0.0105	
		≤	0.5 µmol/mol (Span)	-0.164				
8c	Interferent NO with 1 µmol/mol	≤	0.5 µmol/mol (Zero)	-0.026	or	0.10		
		≤	0.5 µmol/mol (Span)	-0.353				
8d	Interferent N_2O with 50 nmol/mol	≤	0.5 µmol/mol (Zero)	0.009	$u_{int,neg}$			
		≤	0.5 µmol/mol (Span)	-0.164				
9	Averaging effect	≤	7.0% of measured value	1.250	u_{av}	0.06	0.0039	
18	Difference sample/calibration port	≤	1.0%	0.000	$u_{\Delta sc}$	0.00	0.0000	
21	Uncertainty of test gas	≤	3.0%	2.000	u_{cg}	0.09	0.0074	

Combined standard uncertainty	u_c	0.2582	µmol/mol
Expanded uncertainty	U	0.5165	µmol/mol
Relative expanded uncertainty	W	5.99	%
Maximum allowed expanded uncertainty	W_{req}	15	%

Expanded uncertainty from the results obtained in the laboratory tests for analyser 2

Measuring device: Horiba APMA 370 — Serial-No.: SN 10032

Measured component: CO — 8h-limit value: 8.62 µmol/mol

No.	Performance characteristic		Performance criterion	Result	Partial uncertainty		Square of partial uncertainty
1	Repeatability standard deviation at zero	≤	0.3 µmol/mol	0.028	$u_{r,z}$	0.01	0.0000
2	Repeatability standard deviation at 8h-limit value	≤	0.4 µmol/mol	0.070	u_r	0.00	0.0000
3	"lack of fit" at 8h-limit value	≤	4.0% of measured value	0.800	u_l	0.04	0.0016
4	Sensitivity coefficient of sample gas pressure at 8h-limit value	≤	0.7 µmol/mol/kPa	0.009	u_{gp}	0.02	0.0005
5	Sensitivity coefficient of sample gas temperature at 8h-limit value	≤	0.3 µmol/mol/K	0.004	u_{gt}	0.01	0.0001
6	Sensitivity coefficient of surrounding temperature at 8h-limit value	≤	0.3 µmol/mol/K	0.067	u_{st}	0.17	0.0304
7	Sensitivity coefficient of electrical voltage at 8h-limit value	≤	0.3 µmol/mol/V	-0.007	u_V	-0.06	0.0041
8a	Interferent H_2O with 21 mmol/mol	≤	1.0 µmol/mol (Zero)	0.181	u_{H2O}	0.01	0.0001
		≤	1.0 µmol/mol (Span)	-0.009			
8b	Interferent CO_2 with 500 µmol/mol	≤	0.5 µmol/mol (Zero)	0.017	$u_{int,pos}$	0.01 or $u_{int,neg}$	0.0000
		≤	0.5 µmol/mol (Span)	-0.086			
8c	Interferent NO with 1 µmol/mol	≤	0.5 µmol/mol (Zero)	-0.009			
		≤	0.5 µmol/mol (Span)	0.017			
8d	Interferent N_2O with 50 nmol/mol	≤	0.5 µmol/mol (Zero)	0.009			
		≤	0.5 µmol/mol (Span)	-0.017			
9	Averaging effect	≤	7.0% of measured value	-1.100	u_{av}	-0.05	0.0030
18	Difference sample/calibration port	≤	1.0%	0.000	$u_{\Delta sc}$	0.00	0.0000
21	Uncertainty of test gas	≤	3.0%	2.000	u_{cg}	0.09	0.0074

Combined standard uncertainty	u_c	0.2176	µmol/mol
Expanded uncertainty	U	0.4353	µmol/mol
Relative expanded uncertainty	W	5.05	%
Maximum allowed expanded uncertainty	W_{req}	15	%

Expanded uncertainty from the results obtained in the laboratory and field tests for analyser 1

Measuring device: Horiba APMA 370 — Serial-No.: SN 10031

Measured component: CO — 8h-limit value: 8.62 µmol/mol

No.	Performance characteristic		Performance criterion		Result	Partial uncertainty		Square of partial uncertainty	
1	Repeatability standard deviation at zero	≤	0.3 µmol/mol		0.035	$u_{r,z}$	0.01	0.0001	
2	Repeatability standard deviation at 8h-limit value	≤	0.4 µmol/mol		0.064	u_r	not considered, as ur = 0 < ur,f	-	
3	"lack of fit" at 8h-limit value	≤	4.0% of measured value		0.700	u_l	0.03	0.0012	
4	Sensitivity coefficient of sample gas pressure at 8h-limit value	≤	0.7 µmol/mol/kPa		0.006	u_{gp}	0.02	0.0002	
5	Sensitivity coefficient of sample gas temperature at 8h-limit value	≤	0.3 µmol/mol/K		0.005	u_{gt}	0.01	0.0002	
6	Sensitivity coefficient of surrounding temperature at 8h-limit value	≤	0.3 µmol/mol/K		0.077	u_{st}	0.20	0.0398	
7	Sensitivity coefficient of electrical voltage at 8h-limit value	≤	0.3 µmol/mol/V		0.006	u_v	0.06	0.0030	
8a	Interferent H_2O with 21 mmol/mol	≤	1.0 µmol/mol (Zero)		-0.009	u_{H2O}	0.02	0.0003	
		≤	1.0 µmol/mol (Span)		0.233				
8b	Interferent CO_2 with 500 µmol/mol	≤	0.5 µmol/mol (Zero)		0.017	$u_{int,pos}$	0.10	0.0105	
		≤	0.5 µmol/mol (Span)		-0.164				
8c	Interferent NO with 1 µmol/mol	≤	0.5 µmol/mol (Zero)		-0.026	or			
		≤	0.5 µmol/mol (Span)		-0.353				
8d	Interferent N_2O with 50 nmol/mol	≤	0.5 µmol/mol (Zero)		0.009	$u_{int,neg}$			
		≤	0.5 µmol/mol (Span)		-0.164				
9	Averaging effect	≤	7.0% of measured value		1.250	u_{av}	0.06	0.0039	
10	Reproducibility standard deviation under field conditions	≤	5.0% of average over 3 months		3.420	$u_{r,f}$	0.29	0.0869	
11	Long term drift at zero level	≤	0.5 µmol/mol		-0.172	$u_{d,l,z}$	-0.10	0.0099	
12	Long term drift at span level	≤	5.0% of max. of certification range		-1.750	$u_{d,l,8h}$	-0.09	0.0076	
18	Difference sample/calibration port	≤	1.0%		0.000	$u_{\Delta sc}$	0.00	0.0000	
21	Uncertainty of test gas	≤	3.0%		2.000	u_{cg}	0.09	0.0074	
						Combined standard uncertainty	u_c	0.4136	µmol/mol
						Expanded uncertainty	U	0.8271	µmol/mol
						Relative expanded uncertainty	W	9.60	%
						Maximum allowed expanded uncertainty	W_{req}	15	%

Expanded uncertainty from the results obtained in the laboratory and field tests for analyser 2

Measuring device: Horiba APMA 370 — Serial-No.: SN 10032

Measured component: CO — 8h-limit value: 8.62 µmol/mol

No.	Performance characteristic		Performance criterion	Result	Partial uncertainty		Square of partial uncertainty
1	Repeatability standard deviation at zero	≤	0.3 µmol/mol	0.028	$u_{r,z}$	0.01	0.0000
2	Repeatability standard deviation at 8h-limit value	≤	0.4 µmol/mol	0.070	u_r	not considered, as ur = 0 < ur,f	-
3	"lack of fit" at 8h-limit value	≤	4.0% of measured value	0.800	u_l	0.04	0.0016
4	Sensitivity coefficient of sample gas pressure at 8h-limit value	≤	0.7 µmol/mol/kPa	0.009	u_{gp}	0.02	0.0005
5	Sensitivity coefficient of sample gas temperature at 8h-limit value	≤	0.3 µmol/mol/K	0.004	u_{gt}	0.01	0.0001
6	Sensitivity coefficient of surrounding temperature at 8h-limit value	≤	0.3 µmol/mol/K	0.067	u_{st}	0.17	0.0304
7	Sensitivity coefficient of electrical voltage at 8h-limit value	≤	0.3 µmol/mol/V	-0.007	u_V	-0.06	0.0041
8a	Interferent H_2O with 21 mmol/mol	≤	1.0 µmol/mol (Zero)	-0.009	u_{H2O}	0.01	0.0001
		≤	1.0 µmol/mol (Span)	0.181			
8b	Interferent CO_2 with 500 µmol/mol	≤	0.5 µmol/mol (Zero)	0.017	$u_{int,pos}$	or 0.01	0.0000
		≤	0.5 µmol/mol (Span)	-0.086			
8c	Interferent NO with 1 µmol/mol	≤	0.5 µmol/mol (Zero)	-0.009			
		≤	0.5 µmol/mol (Span)	0.017			
8d	Interferent N_2O with 50 nmol/mol	≤	0.5 µmol/mol (Zero)	0.009	$u_{int,neg}$		
		≤	0.5 µmol/mol (Span)	-0.017			
9	Averaging effect	≤	7.0% of measured value	-1.100	u_{av}	-0.05	0.0030
10	Reproducibility standard deviation under field conditions	≤	5.0% of average over 3 months	3.420	$u_{r,f}$	0.29	0.0869
11	Long term drift at zero level	≤	0.5 µmol/mol	-0.164	$u_{d,l,z}$	-0.09	0.0090
12	Long term drift at span level	≤	5.0% of max. of certification range	-1.610	$u_{d,l,8h}$	-0.08	0.0064
18	Difference sample/calibration port	≤	1.0%	0.000	$u_{\Delta sc}$	0.00	0.0000
21	Uncertainty of test gas	≤	3.0%	2.000	u_{cg}	0.09	0.0074

Combined standard uncertainty	u_c	0.3869 µmol/mol
Expanded uncertainty	U	0.7737 µmol/mol
Relative expanded uncertainty	W	8.98 %
Maximum allowed expanded uncertainty	W_{req}	15 %