CERTIFICATE

of Product Conformity (QAL1)

Certificate No.: 0000040331_03

Certified AMS:	O342M for O_3
Manufacturer:	ENVEA 111, Boulevard Robespierre 78304 Poissy Cedex France
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 (2002), VDI 4203-3 (2004), EN 14625 (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 10 pages).
The present certificate replaces certificate 0000040331_02 dated 1 July 2020.

TÜVRheinland® CERTIFIED
Suitability Tested
Complying with 2008/50/EC
EN 15267
Regular Surveillance
www.tuv.com
ID 0000040331

Publication in the German Federal Gazette (BAnz) of 20 April 2007

German Environment Agency

Dessau, 27 June 2025

This certificate will expire on:
30 June 2030

TÜV Rheinland Energy & Environment GmbH
Cologne, 26 June 2025

Dr. Marcel Langner
Head of Section II 4

ppa. Dr. Peter Wilbring

www.umwelt-tuv.eu
qal1-info@tuv.com
Tel. + 49 221 806-5200

TÜV Rheinland Energy & Environment GmbH
Am Grauen Stein
51105 Köln

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:	936/21205818/B dated 8 December 2006 and Addendum 936/21221709/C dated 28 September 2013
Initial certification:	1 April 2014
Expiry date:	30 June 2030
Certificate:	Renewal (of previous certificate 0000040331_02 of 1 July 2020 valid until 30 June 2025)
Publication:	BAnz. 20 April 2007, No. 75, p. 4139, chapter III No. 3.1 and Banz AT 01.04.2014B12, chapter VI notification 21

Approved application

The tested AMS is suitable for continuous immission measurement of O_3 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 30 °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 936/21205818/B dated 8 December 2006 of TÜV Rheinland Immissionsschutz und Energiesysteme GmbH and Addendum 936/21221709/C dated 28 September 2013 issued by TÜV Rheinland Energie und Umwelt GmbH
- 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. 20 April 2007, No. 75, p. 4139, chapter III No. 3.1, Announcement by UBA dated 12 April 2007:

AMS designation:
O342M

Manufacturer:
Environnement S.A., Poissy Cedex, France and
Ansyco GmbH Karlsruhe, Germany

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

Measuring ranges during the performance test:

O_3	0 – 360	µg/m³
	0 – 500	µg/m³

Software version:
V1.28

Test institute:
TÜV Rheinland Immissionsschutz und Energiesysteme GmbH, Cologne
TÜV Rheinland Group
Report No.: 936/21205818/B dated 8 December 2006

Publication in the German Federal Gazette: BAnz AT 01.04.2014 B12, Chap. VI notification 21, Announcement by UBA dated 27 February 2014:

21 Notification of announcement by the German Federal Environment Agency of 12 April 2007 (BAnz. p. 4139, Chapter III Number 3.1)

The measuring system O342M for O_3, manufactured by Environnement, fulfils the requirements of Standard EN 14625 (December 2012). Furthermore, the manufacturing proves and the quality management system of the measuring system O342M for O_3 fulfil the requirements of EN 15267.

The test report of the performance test with report number 936/21205818/B as well as an addendum as an integral part of to the test report with report number 936/21221709/C can be viewed on the internet at www.qal1.de.

Statement by TÜV Rheinland Energie und Umwelt GmbH dated 28 September 2013

Publication in the German Federal Gazette: BAnz AT 26.08.2015 B4, Chap. V notification 46, Announcement by UBA dated 22 July 2015:

46 Notification as regards Federal Environment Agency (UBA) notices of 12 April 2007 (BAnz. p. 4139, chapter III number 3.1) and of 27 February 2014 (BAnz AT 01.04.2014 B12, chapter VI, notification 21)

The current software version of the O342M measuring system for O_3, manufactured by Environnement S.A., is:
v1.0.5 (Calculation process)
v3.6.b (Display process)
For additional means of communication, the AMS was equipped with a USB and a TCP/IP interface.

Statement of TÜV Rheinland Energie und Umwelt GmbH of 16 March 2015

Publication in the German Federal Gazette: BAnz AT 26.03.2019 B7, Chap. IV notification 31, Announcement by UBA dated 27 February 2019:

31 Notification as regards Federal Environment Agency notices of 12 April 2007 (BAnz. p. 4139, chapter III number 3.1) and of 22 July 2015 (BAnz AT 26.08.2015 B4, chapter V notification 46)

The current software version of the O342M measuring system for ozone manufactured by Environnement S.A. is:
v1.0.5 (calculation process)
v3.6.e (display process)

Statement issued by TÜV Rheinland Energy GmbH dated 27 September 2018

Publication in the German Federal Gazette: BAnz AT 24.03.2020 B7, Chap. IV notification 36, Announcement by UBA dated 24 February 2020:

36 Notification as regards Federal Environment Agency (UBA) notices of 12 April 2007 (BAnz. p. 4139, chapter III number 3.1) and of 27 February 2019 (BAnz AT 26.03.2019 B7, chapter IV notification 31)

Environnement S.A., Poissy, France have changed their company name to ENVEA.

The latest software version of the O342M measuring system for ozone manufactured by ENVEA is:
v1.0.5 (calculation process)
v3.8.b (display process)

Statement issued by TÜV Rheinland Energy GmbH dated 1 October 2019

Certified product

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

The O342M analyser measures ozone (O_3) in ambient air. It works by absorbing ozone in the UV range. The broad UV absorption spectrum of ozone has a maximum of approx. 254 nm. This wavelength precisely coincides with the strongest emission line of a mercury low-pressure lamp of 253.7 nm as well as with the maximum spectral sensitivity of the UV detector, a caesium telluride vacuum UV diode. This is an ideal requirement for photometric measurement of ozone.

This measuring principle corresponds to the standard reference method as described in EN 14625.

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 O342M is based on the documents listed below and the regular, continuous monitoring of the Quality Management System of the manufacturer:

Basic test
Test report: 936/21205818/B dated 8 December 2006
TÜV Rheinland Immissionsschutz und Energiesysteme GmbH
Publication: BAnz. 20 April 2007, No. 75, p. 4139, chapter III number 3.1
UBA announcement dated 12 April 2007

Initial certification according to EN 15267 based on notification
Certificate No. 0000040331_00: 29 April 2014
Expiry date of the certificate: 31 March 2019
Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 28 September 2013
Test report: 936/21205818/B dated 8 December 2006 and 936/21221709/C dated 28 September 2013
Publication: BAnz AT 01.04.2014 B12, chapter VI notification 21
UBA announcement dated 27 February 2014

Notifications
Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 16 March 2015
Publication: BAnz AT 26.08.2015 B4, chapter V notification 46
UBA announcement dated 22 July 2015
(Soft- and hardware changes)

Renewal of certificates
Certificate No. 0000040331_01: 1 April 2019
Expiry date of the certificate: 30 June 2020

Notifications
Statement issued by TÜV Rheinland Energy GmbH dated 27 September 2018
Publication: BAnz AT 26.03.2019 B7, chapter IV notification 31
UBA announcement dated 27 February 2019
(Software changes)

Statement issued by TÜV Rheinland Energy GmbH dated 1 October 2019
Publication: BAnz AT 24.03.2020 B7, chapter IV notification 36
UBA announcement dated 24 February 2020
(Software changes and new producer name formerly Environnement S.A.)

Renewal of certificates
Certificate No. 0000040331_02: 1 July 2020
Expiry date of the certificate: 30 June 2025

Renewal of certificates
Certificate No. 0000040331_03: 27 June 2025
Expiry date of the certificate: 30 June 2030

Expanded uncertainty laboratory, system 1

Measuring device: Environnement O342M — Serial-No.: Gerät 1

Measured component: O_3 — 1h-alert threshold: 120 nmol/mol

No.	Performance characteristic		Performance criterion	Result	Partial uncertainty		Square of partial uncertainty
1	Repeatability standard deviation at zero	≤	1.0 nmol/mol	0.400	$u_{r,z}$	0.05	0.0025
2	Repeatability standard deviation at 1h-alert threshold	≤	3.0 nmol/mol	1.000	$u_{r,1h}$	0.13	0.0161
3	"lack of fit" at 1h-alert threshold	≤	4.0% of measured value	-0.200	$u_{l,1h}$	-0.14	0.0192
4	Sensitivity coefficient of sample gas pressure at 1h-alert threshold	≤	2.0 nmol/mol/kPa	-0.010	u_{gp}	-0.09	0.0089
5	Sensitivity coefficient of sample gas temperature at 1h-alert threshold	≤	1.0 nmol/mol/K	0.023	u_{gt}	0.27	0.0705
6	Sensitivity coefficient of surrounding temperature at 1h-alert threshold	≤	1.0 nmol/mol/K	0.035	u_{st}	0.28	0.0768
7	Sensitivity coefficient of electrical voltage at 1h-alert threshold	≤	0.30 nmol/mol/V	-0.040	u_V	-0.54	0.2904
8a	Interferent H_2O with 21 mmol/mol	≤	10 nmol/mol (Zero)	1.000	u_{H2O}	0.82	0.6737
		≤	10 nmol/mol (Span)	1.100			
8b	Interferent Toluene with 0,5 µmol/mol	≤	5.0 nmol/mol (Zero)	0.100	$u_{int,pos}$	2.94	8.6700
		≤	5.0 nmol/mol (Span)	2.600			
8c	Interferent Xylene with 0,5 µmol/mol	≤	5.0 nmol/mol (Zero)	0.200	or		
		≤	5.0 nmol/mol (Span)	2.500	$u_{int,neg}$		
9	Averaging effect	≤	7.0% of measured value	3.000	u_{av}	2.08	4.3200
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}	1.20	1.4400

Combined standard uncertainty	u_c	3.9482	nmol/mol
Expanded uncertainty	U	7.8964	nmol/mol
Relative expanded uncertainty	W	6.58	%
Maximum allowed expanded uncertainty	W_{req}	15	%

Expanded uncertainty laboratory, system 2

Measuring device: Environnement O342M — Serial-No.: Gerät 2

Measured component: O_3 — 1h-alert threshold: 120 nmol/mol

No.	Performance characteristic		Performance criterion	Result	Partial uncertainty		Square of partial uncertainty
1	Repeatability standard deviation at zero		≤ 1.0 nmol/mol	0.400	$u_{r,z}$	0.05	0.0026
2	Repeatability standard deviation at 1h-alert threshold		≤ 3.0 nmol/mol	0.800	$u_{r,lv}$	0.10	0.0108
3	"lack of fit" at 1h-alert threshold		≤ 4.0% of measured value	-1.300	$u_{l,lv}$	-0.90	0.8112
4	Sensitivity coefficient of sample gas pressure at 1h-alert threshold		≤ 2.0 nmol/mol/kPa	0.010	u_{gp}	0.09	0.0089
5	Sensitivity coefficient of sample gas temperature at 1h-alert threshold		≤ 1.0 nmol/mol/K	0.040	u_{gt}	0.46	0.2133
6	Sensitivity coefficient of surrounding temperature at 1h-alert threshold		≤ 1.0 nmol/mol/K	0.065	u_{st}	0.51	0.2649
7	Sensitivity coefficient of electrical voltage at 1h-alert threshold		≤ 0.30 nmol/mol/V	-0.045	u_v	-0.61	0.3675
8a	Interferent H_2O with 21 mmol/mol		≤ 10 nmol/mol (Zero)	0.000	u_{H2O}	0.37	0.1392
			≤ 10 nmol/mol (Span)	0.500			
8b	Interferent Toluene with 0,5 µmol/mol		≤ 5.0 nmol/mol (Zero)	0.100	$u_{int,pos}$	2.02	4.0833
			≤ 5.0 nmol/mol (Span)	1.500			
8c	Interferent Xylene with 0,5 µmol/mol		≤ 5.0 nmol/mol (Zero)	0.400	or $u_{int,neg}$		
			≤ 5.0 nmol/mol (Span)	2.000			
9	Averaging effect		≤ 7.0% of measured value	0.300	u_{av}	0.21	0.0432
18	Difference sample/calibration port		≤ 1.0%	0.000	u_{Dsc}	0.00	0.0000
21	Uncertainty of test gas		≤ 3.0%	2.000	ucg	1.20	1.4400
					Combined standard uncertainty	u_c	2.7175 nmol/mol
					Expanded uncertainty	U	5.4351 nmol/mol
					Relative expanded uncertainty	W	4.53 %
					Maximum allowed expanded uncertainty	W_{req}	15 %

Combined uncertainty, laboratory and field, system 1

Measuring device: Environnement O342M — Serial-No.: — Gerät 1

Measured component: O_3 — 1h-alert threshold: 120 nmol/mol

No.	Performance characteristic		Performance criterion	Result	Partial uncertainty		Square of partial uncertainty
1	Repeatability standard deviation at zero	≤	1.0 nmol/mol	0.400	$u_{r,z}$	0.05	0.0025
2	Repeatability standard deviation at 1h-alert threshold	≤	3.0 nmol/mol	1.000	$u_{r,lh}$	not considered, as ur,lh = 0.12 < ur,f	-
3	"lack of fit" at 1h-alert threshold	≤	4.0% of measured value	-0.200	$u_{l,lh}$	-0.14	0.0192
4	Sensitivity coefficient of sample gas pressure at 1h-alert threshold	≤	2.0 nmol/mol/kPa	-0.010	u_{gp}	-0.09	0.0089
5	Sensitivity coefficient of sample gas temperature at 1h-alert threshold	≤	1.0 nmol/mol/K	0.023	u_{gt}	0.27	0.0705
6	Sensitivity coefficient of surrounding temperature at 1h-alert threshold	≤	1.0 nmol/mol/K	0.035	u_{st}	0.28	0.0768
7	Sensitivity coefficient of electrical voltage at 1h-alert threshold	≤	0.30 nmol/mol/V	-0.040	u_V	-0.54	0.2904
8a	Interferent H_20 with 21 mmol/mol	≤	10 nmol/mol (Zero)	1.000	u_{H2O}	0.82	0.6737
		≤	10 nmol/mol (Span)	1.100			
8b	Interferent Toluene with 0,5 µmol/mol	≤	5.0 nmol/mol (Zero)	0.100	$u_{int,pos}$	2.94	8.6700
		≤	5.0 nmol/mol (Span)	2.600	or		
8c	Interferent Xylene with 0,5 µmol/mol	≤	5.0 nmol/mol (Zero)	0.200			
		≤	5.0 nmol/mol (Span)	2.500	$u_{int,neg}$		
9	Averaging effect	≤	7.0% of measured value	3.000	u_{av}	2.08	4.3200
10	Reproducibility standard deviation under field conditions	≤	5.0% of average over 3 months	3.240	$u_{r,f}$	3.89	15.1165
11	Long term drift at zero level	≤	5.0 nmol/mol	-0.580	$u_{d,l,z}$	-0.33	0.1121
12	Long term drift at span level	≤	5.0% of max. of certification range	2.280	$u_{d,l,lh}$	1.58	2.4952
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}	1.20	1.4400

Combined standard uncertainty	u_c	5.7703	nmol/mol
Expanded uncertainty	U	11.5405	nmol/mol
Relative expanded uncertainty	W	9.62	%
Maximum allowed expanded uncertainty	W_{req}	15	%

Combined uncertainty, laboratory and field, system 2

Measuring device: Environnement O342M — Serial-No.: — Gerät 2

Measured component: O_3 — 1h-alert threshold: 120 nmol/mol

No.	Performance characteristic		Performance criterion	Result	Partial uncertainty		Square of partial uncertainty	
1	Repeatability standard deviation at zero	≤	1.0 nmol/mol	0.400	$u_{r,z}$	0.05	0.0026	
2	Repeatability standard deviation at 1h-alert threshold	≤	3.0 nmol/mol	0.800	$u_{r,lh}$	not considered, as ur,lh = 0.1 < ur,f	-	
3	"lack of fit" at 1h-alert threshold	≤	4.0% of measured value	-1.300	$u_{l,lh}$	-0.90	0.8112	
4	Sensitivity coefficient of sample gas pressure at 1h-alert threshold	≤	2.0 nmol/mol/kPa	0.010	u_{gp}	0.09	0.0089	
5	Sensitivity coefficient of sample gas temperature at 1h-alert threshold	≤	1.0 nmol/mol/K	0.040	u_{gt}	0.46	0.2133	
6	Sensitivity coefficient of surrounding temperature at 1h-alert threshold	≤	1.0 nmol/mol/K	0.065	u_{st}	0.51	0.2649	
7	Sensitivity coefficient of electrical voltage at 1h-alert threshold	≤	0.30 nmol/mol/V	-0.045	u_V	-0.61	0.3675	
8a	Interferent H_2O with 21 mmol/mol	≤	10 nmol/mol (Zero)	0.000	u_{H2O}	0.37	0.1392	
		≤	10 nmol/mol (Span)	0.500				
8b	Interferent Toluene with 0,5 µmol/mol	≤	5.0 nmol/mol (Zero)	0.100	$u_{int,pos}$ or $u_{int,\ neg}$	2.02	4.0833	
		≤	5.0 nmol/mol (Span)	1.500				
8c	Interferent Xylene with 0,5 µmol/mol	≤	5.0 nmol/mol (Zero)	0.400				
		≤	5.0 nmol/mol (Span)	2.000				
9	Averaging effect	≤	7.0% of measured value	0.300	u_{av}	0.21	0.0432	
10	Reproducibility standard deviation under field conditions	≤	5.0% of average over 3 months	3.240	$u_{r,f}$	3.89	15.1165	
11	Long term drift at zero level	≤	5.0 nmol/mol	0.790	$u_{d,l,z}$	0.46	0.2080	
12	Long term drift at span level	≤	5.0% of max. of certification range	3.550	$u_{d,l,lh}$	2.46	6.0492	
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}	1.20	1.4400	

Combined standard uncertainty	u_c	5.3617	nmol/mol
Expanded uncertainty	U	10.7234	nmol/mol
Relative expanded uncertainty	W	8.94	%
Maximum allowed expanded uncertainty	W_{req}	15	%