

CERTIFICATE

of Product Conformity (QAL1)

Certificate No.: 0000069251

AMS designation: VOC72e for benzene

Manufacturer: ENVEA
111, Boulevard Robespierre
78304 Poissy Cedex
France

Test Laboratory: TÜV Rheinland Energy GmbH

**This is to certify that the AMS has been tested
according to the standards**

**VDI 4202-1 (2018), VDI 4203-3 (2010), EN 14662-3 (2016),
Guide to the demonstration of equivalence of ambient air monitoring methods (2015),
EN 15267-1 (2009) and EN 15267-2 (2009).**

Certification is awarded in respect of the conditions stated in this certificate
(this certificate contains 9 pages).

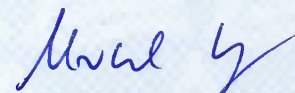


Suitability Tested
Equivalent to
2008/50/EC
EN 15267
Regular Surveillance

www.tuv.com
ID 0000069251

Publication in the German Federal Gazette
(BAnz) of 07 May 2020

German Federal Environment Agency
Dessau, 17 June 2020



Dr. Marcel Langner
Head of Section II 4.1

This certificate will expire on:
06 May 2025

TÜV Rheinland Energy GmbH
Cologne, 16 June 2020



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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 certificate D-PL-11120-02-00.

Test Report: 936/21244174/A dated 13 June 2019
Initial certification: 07 May 2020
Expiry date: 06 May 2025
Publication: BAnz AT 07.05.2020 B8, chapter II number 1.1

Approved application

The certified AMS is suitable for continuous ambient air monitoring of benzene (stationary operation).

The suitability of the AMS for this application was assessed on the basis of a laboratory test and a three-months 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, in consultation with the manufacturer, that this AMS is suitable for monitoring the AMS readings relevant to the application.

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

Basis of the certification

This certification is based on:

- Test report no. 936/21244174/A dated 13 June 2019 issued by TÜV Rheinland Energy 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 AT 07.05.2020 B8, chapter II number 1.1,
UBA announcement dated 31 March 2020:

AMS designation:

VOC72e for benzene

Manufacturer:

ENVEA, Poissy, France

Field of application:

For continuous ambient air monitoring of benzene (stationary operation)

Measuring ranges during performance testing:

Component	Certification range	Unit
Benzene	0–50	µg/m ³

Software version:

1.0.a

Restrictions:

None

Notes:

1. Given its measuring principle, the instrument does not provide a life zero.
2. The test report on performance testing is available on the internet at www.qal1.de.

Test Report:

TÜV Rheinland Energy GmbH, Cologne
Report no.: 936/21244174/A dated 13 June 2019

Certified product

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

The VOC72e measuring system analyses volatile organic compounds. The AMS' measuring principle is based on gas chromatography for the separation of the measured compounds coupled with photo-ionisation detection.

The VOC72e ambient air quality measuring system consists of a compact housing. The measuring system is operated via a display at the front of the instrument. The user is able to check measurement data and instrument information, change parameters and check correct functionality of the AMS.

Measuring scale	Max 1000 µg/m ³ (programmable)
Units	ppb or µg/m ³ (programmable)
Measured compounds	Benzene (tested), plus toluene, ethene benzene, m+p-xylene, o-xylene (not performance tested)
Analysis cycle time	15 min during performance testing, further intervals are programmable
Sample flow rate	50 ml/minute
Trap flow; trap volume	12 ml/minute; (165 ml in a 15-minute cycle)
Flow control	Internal vacuum pump + heated micro capillary
Sampling rate	>90 % of cycle duration
Adsorbent/trap temperature	Carbopack® / 35 °C
Desorption temperature/heating speed	380 °C / >160 °C / second
Injection valve	6-port (heated), pneumatically controlled
Chromatography column	Stainless steel 15 m x 0.25 mm x 1 µm apolar
Carrier gas control	Electronic pressure control
Temperature control	20 - 170 °C ± 0.1 °C, 5 ramps up to 30 °C/minute
Cooling	Liquid heat exchanger and thermo-electric cooler
Detector	Photo ionisation (PID) 10.6 eV with nitrogen curtain
Temperature control	140 °C (programmable)
Analogue outputs	4 analogue outputs 0- 1 V, 0 – 10 V, 0 – 20 mA, 4 – 20 mA 4 analogue outputs 0 – 2.5 V
Ethernet port	RJ45 socket, UDP protocol
Digital outputs	USB, RS232 and RS422
Input voltage	100 – 240 V + ground; 50 – 60 Hz
Power	Average 130 VA, peak 200 VA
Gas supply	Hydrogen 5.5; 3.2 ± 0.2 bar; 15 ml/minute
Dimensions (l x w x h)/weight	606 mm x 483 mm x 133 mm / 12.5 kg

General remarks

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 manufacturing process for 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 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 document as well as the certification mark remains property of TÜV Rheinland Energy GmbH. Upon revocation of the publication the certificate loses its validity. After the expiration of the certificate and on request of TÜV Rheinland Energy GmbH this document shall be returned and the certificate mark must no longer be used.

The relevant version of this certificate and its expiration date are also accessible on the internet at gal1.de.

Document history

Certification of the VOC72e measuring system is based on the documents listed below and the regular, continuous surveillance of the manufacturer's quality management system:

Initial certification according to EN 15267

Certificate no.: 0000069251: 17 June 2020
Expiry date of the certificate: 06 May 2025
Test report: 936/21244174/A dated 13 June 2019
TÜV Rheinland Energy GmbH, Cologne
Publication: BAnz AT 07.05.2020 B8, chapter II number 1.1
UBA announcement dated 31 March 2020

Expanded uncertainty laboratory, system 1

Measuring device:	VOC72e	Serial-No.:	323	µg/m³	
Measured component:	Benzene	annual limit value:	5.0		
No.	Performance characteristic	Performance criterion	Result	Partial uncertainty	Square of partial uncertainty
2	Repeatability standard deviation annual limit value	≤ 0.25 µg/m³	0.012	u _{r,c}	0.0000
3	"lack of fit" at annual limit value	≤ 5.0% of gas level	2.205	u _l	0.0041
4	Sensitivity coefficient of sample gas pressure at annual limit value	≤ 0.40 (µg/m³)/kPa	0.035	u _{gp}	0.0068
5	Sensitivity coefficient of surrounding temperature at annual limit value	≤ 0.08 (µg/m³)/K	0.053	u _{st}	0.0172
6	Sensitivity coefficient of electrical voltage at annual limit value	≤ 0.080 (µg/m³)/V	0.000	u _v	0.0000
7a	Interferent H2O with 19 mmol/mol	≤ 0.015 (µg/m³)/mmol/mol	-0.003	u _{H2O}	0.0016
8	Memory-Effect	≤ 1.0 µg/m³	0.134	u _m	0.0001
12	Difference sample/calibration port	≤ 1%	0.000	u _{asc}	0.0000
15	Uncertainty of test gas	≤ 3%	3.000	u _{cg}	0.0056
			Combined standard uncertainty	u _c	0.1880
			Expanded uncertainty	U	0.3761
			Relative expanded uncertainty	W	7.52
			Maximum allowed expanded uncertainty	W _{req}	25

Expanded uncertainty laboratory, system 2

Measuring device:		Serial-No.:		324	
Measured component:		annual limit value:		5.0	
VOC7ze		Benzene		µg/m³	
No.	Performance characteristic	Performance criterion	Result	Partial uncertainty	Square of partial uncertainty
2	Repeatability standard deviation annual limit value	≤ 0.25 µg/m³	0.010	u _{r,c} 0.00	0.0000
3	"lack of fit" at annual limit value	≤ 5.0% of gas level	1.398	u _l 0.04	0.0016
4	Sensitivity coefficient of sample gas pressure at annual limit value	≤ 0.40 (µg/m³)/kPa	0.035	u _{gp} 0.08	0.0068
5	Sensitivity coefficient of surrounding temperature at annual limit value	≤ 0.08 (µg/m³)/K	0.029	u _{st} 0.07	0.0051
6	Sensitivity coefficient of electrical voltage at annual limit value	≤ 0.080 (µg/m³)/V	0.001	u _v 0.00	0.0000
7a	Interferent H2O with 19 mmol/mol	≤ 0.015 (µg/m³)/mmol/mol	-0.002	u _{H2O} -0.03	0.0008
8	Memory-Effect	≤ 1.0 µg/m³	0.128	u _m 0.01	0.0001
12	Difference sample/calibration port	≤ 1%	0.000	u _{Asc} 0.00	0.0000
15	Uncertainty of test gas	≤ 3%	3.000	u _{cg} 0.08	0.0056
Combined standard uncertainty			u _c	0.1417	µg/m³
Expanded uncertainty			U	0.2833	µg/m³
Relative expanded uncertainty			W	5.67	%
Maximum allowed expanded uncertainty			W _{req}	25	%

Combined uncertainty, laboratory and field, system 1

Measuring device: VOC7ze		Serial-No.: 323		annual limit value: 5.0		µg/m³	
Measured component: Benzene		annual limit value: 5.0		µg/m³		µg/m³	
No.	Performance characteristic	Performance criterion	Result	Partial uncertainty	Square of partial uncertainty		
2	Repeatability standard deviation annual limit value	≤ 0.25 µg/m³	0.012	u _{r,lab}	not respected, as u _{r,lab} = 0 < u _{r,f}	-	
3	"lack of fit" at annual limit value	≤ 5.0% of gas level	2.205	u _{l,lab}	0.06	0.0041	
4	Sensitivity coefficient of sample gas pressure at annual limit value	≤ 0.40 (µg/m³)/kPa	0.035	u _{sp}	0.08	0.0068	
5	Sensitivity coefficient of surrounding temperature at annual limit value	≤ 0.08 (µg/m³)/K	0.053	u _{st}	0.13	0.0172	
6	Sensitivity coefficient of electrical voltage at annual limit value	≤ 0.080 (µg/m³)/V	0.000	u _v	0.00	0.0000	
7a	Interferent H2O with 19 mmol/mol	≤ 0.015 (µg/m³)/mmol/mol	-0.003	u _{H2O}	-0.04	0.0016	
8	Memory-Effect	≤ 1.0 µg/m³	0.134	u _{av}	0.01	0.0001	
9	Repeatability standard deviation in field	≤ 0.25 µg/m³ of average of 3 month	0.186	u _{r,f}	0.19	0.0346	
10	Long term drift at span	≤ 10 % of cert. range	3.150	u _{d,lab}	0.09	0.0083	
12	Difference sample/calibration port	≤ 1%	0.000	u _{ssc}	0.00	0.0000	
15	Uncertainty of test gas	≤ 3%	3.000	u _{sg}	0.08	0.0056	
			Combined standard uncertainty	u _c		0.3359	µg/m³
			Expanded uncertainty	U		0.6717	µg/m³
			Relative expanded uncertainty	W		13.43	%
			Maximum allowed expanded uncertainty	W _{req}		25	%

Combined uncertainty, laboratory and field, system 2

Measuring device: VOC72e		Serial No.: 324		annual limit value: 5.0 µg/m³	
Measured component: Benzene		Performance criterion		Partial uncertainty	Square of partial uncertainty
No.	Performance characteristic	Result	Performance criterion	Partial uncertainty	Square of partial uncertainty
2	Repeatability standard deviation annual limit value	0.010	≤ 0.25 µg/m³	u _{r,ih}	-
3	"lack of fit" at annual limit value	1.398	≤ 5.0% of gas level	u _{l,ih}	0.0016
4	Sensitivity coefficient of sample gas pressure at annual limit value	0.035	≤ 0.40 (µg/m³)/kPa	u _{sp}	0.0068
6	Sensitivity coefficient of surrounding temperature at annual limit value	0.029	≤ 0.08 (µg/m³)/K	u _{st}	0.0051
7	Sensitivity coefficient of electrical voltage at annual limit value	0.001	≤ 0.080 (µg/m³)/V	u _v	0.0000
8a	Interferent H2O with 19 mmol/mol	-0.002	≤ 0.015 (µg/m³)/mmol/mol	u _{H2O}	0.0008
9	Memory-Effect	0.128	≤ 1.0 µg/m³	u _{av}	0.0001
10	Repeatability standard deviation in field	0.186	≤ 0.25 µg/m³ of average of 3 month	u _{r,i}	0.0346
12	Long term drift at span	3.510	≤ 10 % of cert. range	u _{l,ih}	0.0103
18	Difference sample/calibration port	0.000	≤ 1%	u _{psc}	0.0000
21	Uncertainty of test gas	3.000	≤ 3%	u _{sg}	0.0056
		Combined standard uncertainty		u _c	0.3155
		Expanded uncertainty		U	0.6309
		Relative expanded uncertainty		W	12.62
		Maximum allowed expanded uncertainty		W _{req}	25