

# CERTIFICATE

## of Product Conformity (QAL1)

Certificate No: 0000038497\_02

**Certified AMS:** PCME QAL 991 for dust

**Manufacturer:** ENVEA UK Ltd. (PCME Ltd.)  
ENVEA House, Rose & Crown Road  
Swavesey / Cambridge CB24 4RB  
United Kingdom

**Test Institute:** TÜV Rheinland Energy GmbH

This is to certify that the AMS has been tested  
and found to comply with the standards  
EN 15267-1 (2009), EN 15267-2 (2009), EN 15267-3 (2007)  
and EN 14181 (2014).

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

The present certificate replaces certificate 0000038497\_01 dated 05 March 2018.



Suitability Tested  
EN 15267  
QAL1 Certified  
Regular  
Surveillance

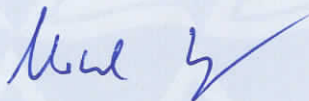
www.tuv.com  
ID 0000038497

Publication in the German Federal Gazette  
(BAnz) of 05 March 2013

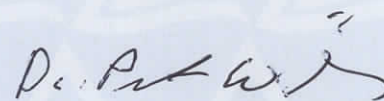
German Environment Agency  
Dessau, 02 March 2023

This certificate will expire on:  
04 March 2028

TÜV Rheinland Energy GmbH  
Cologne, 01 March 2023



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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.

<b>Test report:</b>	936/21220334/B dated 28 September 2012
<b>Initial certification:</b>	05 March 2013
<b>Expiry date:</b>	04 March 2028
<b>Certificate:</b>	Renewal (of previous certificate 0000038497_01 of 05 March 2018 valid until 04 March 2023)
<b>Publication:</b>	BAnz AT 05.03.2013 B10, chapter I No. 1.2

### Approved application

The tested AMS is suitable for use at combustion plants according to EC Directive 2001/80/EC (13th BImSchV:2012), at waste incineration plants according to EC Directive 2000/76/EC (17th BImSchV:2009), Directive 2015/2193/EC (44th BImSchV:2021), the 27th BImSchV:1997, the 30th BImSchV:2009 and TA Luft:2002. The measured ranges have been selected so as to cater for as broad a field of application as possible.

The suitability of the AMS for this application was assessed on the basis of a laboratory test and a six- months field test in the waste gas of a spray tower used for drying materials processed for manufacturing ceramic flooring.

The AMS is approved for an ambient temperature range of -20° to +50°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 emission limit values relevant to the application.

Any potential user should ensure, in consultation with the manufacturer, that this AMS is suitable for the installation at which it will be installed.

### Note:

The legal regulations mentioned correspond to the current state of legislation during certification. Each user should, if necessary, in consultation with the competent authority, ensure that this AMS meets the legal requirements for the intended use. In addition, it cannot be ruled out that legal regulations governing the use of a measuring device for emission monitoring may change during the lifetime of the certificate.

### Basis of the certification

This certification is based on:

- Test report 936/21220334/B dated 28 September 2012 of 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 AT 05.03.2013 B10, chapter I No. 1.2,  
Announcement by UBA dated 12 February 2013:

**AMS designation:**

PCME QAL 991 for total dust

**Manufacturer:**

PCME Ltd., St. Ives, United Kingdom

**Field of application:**

For plants requiring official approval and for plants according to the 27th BImSchV

**Measuring ranges during performance testing:**

Component	Certification range	Supplementary range	Unit
Dust	0–50*	0–200*	Units

\* 0–50 units corresponded to 0–15 mg/m<sup>3</sup> dust in the wind tunnel test.

\* 0–200 units corresponded to 0–15 mg/m<sup>3</sup> dust during the field test.

**Software versions:**

Controller Software: 7.90

Sensor software: 4.4

**Restrictions:**

1. The measuring system may not be used downstream of an electronic precipita-tor.
2. At flow velocities < 8.8 m/s, the measuring system may only be used if a constant flow velocity can be ensured.

**Notes:**

1. The maintenance interval is three months.
2. Correct operation of the measuring system was demonstrated for flow velocities of 5.2 m/s and higher.
3. The dust concentration is determined in wet flue gas under operational conditions.
4. In the dust channel, the measuring system was unable to measure heavy metal coated dusts.
5. During performance testing in accordance with EN 15267-3, the requirement for the determination coefficient R<sup>2</sup> of the calibration function was not fulfilled.
6. Supplementary testing (migration to standard EN 15267) as regards Federal Environment Agency (UBA) notices of 14 February 2008 (BAnz p. 901, chapter I no. 1.1) and of 23 February 2012 (BAnz p. 920, chapter V notification 10).

**Test Report:**

TÜV Rheinland Energie und Umwelt GmbH, Cologne

Report no.: 936/21220334/B dated 28 September 2012

Publication in the German Federal Gazette: BAnz AT 14.03.2016 B7, chap. V notification 27,  
Announcement by UBA dated 18 February 2016:

**27 Notification as regards Federal Environment Agency (UBA) notice  
of 12 February 2013 (BAnz AT 05.03.2013 B10, chapter I number 1.2)**

The current software versions of the PCME QAL 991 measuring system  
for total dust manufactured by PCME Ltd. are:

Controller Software: 8.41  
Sensor Software: 4.4

Statement issued by TÜV Rheinland Energie und Umwelt GmbH  
dated 22 October 2015

Publication in the German Federal Gazette: BAnz AT 26.03.2018 B8, chap. V notification 33,  
Announcement by UBA dated 21 February 2018:

**33 Notification as regards Federal Environment Agency (UBA) notices  
of 12 February 2013 (BAnz AT 05.03.2013 B10, chapter I number 1.2) and  
of 18 February 2016 (BAnz AT 14.03.2016 B7, chapter V notification 27)**

The current software versions of the PCME QAL 991 measuring system for total dust  
manufactured by PCME Ltd. are:

Controller Software: 9.03  
Sensor Software: 4.4

Statement issued by TÜV Rheinland Energy GmbH dated 18 August 2017

Publication in the German Federal Gazette: BAnz AT 26.03.2019 B7, chap. IV notification 51,  
Announcement by UBA dated 27 February 2019:

**51 Notification as regards Federal Environment Agency notices  
of 12 February 2013 (BAnz AT 05.03.2013 B10, chapter I number 1.2) and  
of 21 February 2018 (BAnz AT 26.03.2018 B8, chapter V 33rd notification)**

The PCME QAL 991 measuring system for total dust manufactured by PCME Ltd.  
may also be operated with the operational units Interface Module, MultiController or  
ProController.

The current software versions of the PCME QAL 991 measuring system are:

Sensor software: 4.4  
Control units:  
Interface module: 9.04  
MultiController: 9.04  
ProController: 2.19

Statement issued by TÜV Rheinland Energy GmbH dated 2 October 2018

Publication in the German Federal Gazette: BAnz AT 24.03.2020 B7, chap. IV notification 43,  
Announcement by UBA dated 24 February 2020:

**43 Notification as regards Federal Environment Agency (UBA) notices of 12 February 2013 (BAnz AT 05.03.2013 B10, chapter I number 1.2) and of 27 February 2019 (BAnz AT 26.03.2019 B7, chapter IV notification 51)**

The company name has changed from PCME Ltd. to ENVEA UK Ltd.  
The new production site for the PCME QAL 991 dust monitor manufactured by ENVEA UK Ltd. is:  
ENVEA UK Ltd.  
ENVEA House, Rose & Crown Road  
Swavesey  
Cambridge CB24 4RB  
United Kingdom

The latest software versions of the PCME QAL 991 measuring system are:

Sensor: 4.4  
Control units:  
Interface module: 9.04  
MultiController: 9.04  
ProController: 2.26

Statement issued by TÜV Rheinland Energy GmbH dated 4 December 2019

Publication in the German Federal Gazette: BAnz AT 31.07.2020 B10, chap. II notification 6,  
Announcement by UBA dated 27 May 2020:

**6 Notification as regards Federal Environment Agency (UBA) notices of 12 February 2013 (BAnz AT 05.03.2013 B10, chapter I number 1.2) and of 24 February 2020 (BAnz AT 24.03.2020 B7, chapter IV, notification 43)**

The PCME QAL 991 measuring system for total dust manufactured by ENVEA UK Ltd. may now be operated with the optional netController control unit.

The netController software version is:  
1.04.

Statement issued by TÜV Rheinland Energy GmbH dated 11 March 2020

### Certified product

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

The measuring system comprises a sensor and a control unit. The electrodynamic signal detected by the probe rod is converted into uniform "units" by the electronic unit. Data output at the display and the outlets of the PCME QAL 991 measuring system takes place in the form of these uniform units which are representative for the dust concentration measured.

The PCME QAL 991 uses the electrodynamic method as a measuring principle. The technology electronically filters out the DC signal caused by particle collision with the measurement head in the duct. As a result of the charged particles, an AC signal is produced which pass by the sensor rod and cause an interaction. Given the specific optimisation of the frequency signal (electrodynamic method) the instrument is rather insensitive to fluctuations in the flow velocity; it operates with increased stability even with dust deposited on the sensor rod. The dust signal is amplified, digitised and further processed at the measurement head. In constant processes with bag filters (at which characteristics of particle charges are normally constant), the processed signal is proportional to the dust concentration.

### 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 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 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 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: [gal1.de](http://gal1.de).

### **History of documents**

Certification of PCME QAL 991 is based on the documents listed below and the regular, continuous monitoring of the Quality Management System of the manufacturer:

#### **Basic test**

Test report 936/21206365/A dated 7 July 2007  
TÜV Rheinland Immissionsschutz und Energiesysteme GmbH  
Publication BAnz. 06 November 2007, No. 206, p. 7925, chapter I number 1.1  
UBA announcement dated 23 September 2007

#### **Supplementary test**

Test report: 936/21206365/B of November 09, 2007  
TÜV Rheinland Immissionsschutz und Energiesysteme GmbH, Cologne, Germany  
Publication: BAnz. 07 March 2008 No. 38, p. 901, Chapter I number. 1.1  
UBA announcement of February 14, 2008

#### **Notifications**

Statement issued by TÜV Rheinland Immissionsschutz und Energiesysteme GmbH dated 10 October 2008  
Publication BAnz. 11 March 2009, No. 38, p. 899, chapter IV notification 10  
UBA announcement dated 19 February 2009  
(Changing system name)

Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 12 October 2011  
Publication BAnz. 02 March 2012, No. 36, p. 920, chapter V notification 10  
UBA announcement dated 23 February 2012  
(Soft- and hardware changes)

#### **Initial certification according to EN 15267**

Certificate No. 0000038497\_00: 22 March 2013  
Expiry date of the certificate: 04 March 2018  
Test report 936/21220334/B dated 28 September 2012  
TÜV Rheinland Energie und Umwelt GmbH  
Publication BAnz AT 05.03.2013 B10, chapter I number 1.2  
UBA announcement dated 12 February 2013

#### **Notifications**

Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 22 October 2015  
Publication BAnz AT 14.03.2016 B7, chapter V notification 27  
UBA announcement dated 18 February 2016  
(Software changes)

#### **Renewal of certificate**

Certificate No. 0000038497\_01: 05 March 2018  
Expiry date of the certificate: 04 March 2023

**Notifications**

Statement issued by TÜV Rheinland Energy GmbH dated 18 August 2017  
Publication BAnz AT 26.03.2018 B8, chapter V notification 33  
UBA announcement dated 21 February 2018  
(Software changes)

Statement issued by TÜV Rheinland Energy GmbH dated 2 October 2018  
Publication BAnz AT 26.03.2019 B7, chapter IV notification 51  
UBA announcement dated 27 February 2019  
(Software changes)

Statement issued by TÜV Rheinland Energy GmbH dated 4 December 2019  
Publication BAnz AT 24.03.2020 B7, chapter IV notification 43  
UBA announcement dated 24 February 2020  
(Various changes)

Statement issued by TÜV Rheinland Energy GmbH dated 11 March 2020  
Publication BAnz AT 31.07.2020 B10, chapter II notification 6  
UBA announcement dated 27 May 2020  
(Soft- and hardware changes)

**Renewal of certificate**

Certificate No. 0000038497\_02: 02 March 2023  
Expiry date of the certificate: 04 March 2028



**Calculation of overall uncertainty according to EN 14181 and EN 15267-3**

**Measuring system**

Manufacturer	PCME Ltd.
Name of measuring system	QAL 991
Serial number of the candidates	26206 / 26207
Measuring principle	Tribodynamic

**Test report**

Test laboratory	TÜV Rheinland
Date of report	2012-09-28

**Measured component**

Certification range	Staub	0 - 15 mg/m <sup>3</sup>
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**Calculation of the combined standard uncertainty**

**Tested parameter**

	$u$	$u^2$
Standard deviation from paired measurements under field conditions *	$u_D$ 0.110 mg/m <sup>3</sup>	0.012 (mg/m <sup>3</sup> ) <sup>2</sup>
Lack of fit	$u_{inf}$ 0.058 mg/m <sup>3</sup>	0.003 (mg/m <sup>3</sup> ) <sup>2</sup>
Zero drift from field test	$u_{d,z}$ 0.017 mg/m <sup>3</sup>	0.000 (mg/m <sup>3</sup> ) <sup>2</sup>
Span drift from field test	$u_{d,s}$ -0.017 mg/m <sup>3</sup>	0.000 (mg/m <sup>3</sup> ) <sup>2</sup>
Influence of ambient temperature at span	$u_t$ 0.058 mg/m <sup>3</sup>	0.003 (mg/m <sup>3</sup> ) <sup>2</sup>
Influence of supply voltage	$u_v$ 0.035 mg/m <sup>3</sup>	0.001 (mg/m <sup>3</sup> ) <sup>2</sup>
Uncertainty of reference material at 70% of certification range	$u_{rm}$ 0.121 mg/m <sup>3</sup>	0.015 (mg/m <sup>3</sup> ) <sup>2</sup>

\* The larger value is used:  
"Repeatability standard deviation at span" or  
"Standard deviation from paired measurements under field conditions"

Combined standard uncertainty ( $u_c$ )	$u_c = \sqrt{\sum (u_{max,i})^2}$	0.19 mg/m <sup>3</sup>
Total expanded uncertainty	$U = u_c * k = u_c * 1.96$	0.37 mg/m <sup>3</sup>

<b>Relative total expanded uncertainty</b>	<b>U in % of the ELV 10 mg/m<sup>3</sup></b>	<b>3.7</b>
<b>Requirement of 2000/76/EC and 2001/80/EC</b>	<b>U in % of the ELV 10 mg/m<sup>3</sup></b>	<b>30.0</b>
<b>Requirement of EN 15267-3</b>	<b>U in % of the ELV 10 mg/m<sup>3</sup></b>	<b>22.5</b>