

# CERTIFICATE

## of Product Conformity (QAL1)

Certificate No.: 0000035013\_02

**Certified AMS:** PCME QAL 181 WS for dust

**Manufacturer:** PCME Ltd.  
60 Edison Road  
St. Yves  
Cambs  
PE273 GH  
United Kingdom

**Test Institute:** TÜV Rheinland Energy GmbH

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

**EN 15267-1 (2009), EN 15267-2 (2009), EN 15267-3 (2007)  
and EN 14181 (2004)**

Certification is awarded in respect of the conditions stated in this certificate  
(this certificate contains 7 pages).



Suitability Tested  
EN 15267  
QAL1 Certified  
Regular  
Surveillance

www.tuv.com  
ID 0000035013

Publication in the German Federal Gazette  
(BAnz.) of 02 March 2012

German Federal Environment Agency  
Dessau, 28 February 2017



Dr. Marcel Langner  
Head of Section II 4.1

This certificate will expire on:  
01 March 2022

TÜV Rheinland Energy GmbH  
Cologne, 27 February 2017



ppa. Dr. Peter Wilbring

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Am Grauen Stein  
51105 Köln

Test institute accredited to EN ISO/IEC 17025:2005 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  
qal1.de info@qal1.de page 1 of 7

**Certificate:**  
0000035013\_02 / 28 February 2017

**Test report:** 936/21216218/A of 14 October 2011  
**Initial certification:** 02 March 2012  
**Expiry date:** 01 March 2022  
**Certificate** renewal (previous certificate 0000035013\_01 dated from 20 August 2012 with validity up to the 01 March 2017)  
**Publication:** BAnz. 02 March 2012, No. 36, p. 920, chapter I, No. 1.2

### **Approved application**

The tested AMS is suitable for use at combustion plants according to Directive 2010/75/EU, chapter III (13. BImSchV), at waste incineration plants according to Directive 2010/75/EU, chapter IV (17. BImSchV) and other plants requiring official approval. The measured ranges have been selected considering the wide application range of the AMS.

The suitability of the AMS for this application was assessed on the basis of a laboratory test and a three months field test at plant for thermal recycling of industrial solvents.

The AMS is approved for an ambient temperature range of -20 °C 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 valid at the time of performance testing. As changes in legal regulations are possible, any potential user should ensure that this AMS is suitable for monitoring the limit value 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.

### **Basis of the certification**

This certification is based on:

- test report 936/21216218/A of 14 October 2011 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. 02 March 2012, No. 36, p. 920, chapter I, No. 1.2,  
Announcement by UBA from 23 February 2012:

**AMS name:**

PCME STACK 181 WS for dust

**Manufacturer:**

PCME Ltd., St. Ives, Cambs, England

**Field of application:**

For measurements at plants requiring official approval and plants according to 27<sup>th</sup> BImSchV

**Measuring ranges during the suitability test:**

Component	Certification range	Supplementary measurement ranges			Unit
		0 - 7,5	0 - 30	0 - 100	
Dust	0 - 15	0 - 7,5	0 - 30	0 - 100	SL

0 – 15 Scattered light units (SL)  $\cong$  15 mg/m<sup>3</sup> dust

**Software versions:**

Control Unit: 8.00

Wet Stack Monitor: 2.00

**Restrictions:**

None

**Notes:**

1. Dust concentration is measured in wet flue gas under operating conditions.
2. The maintenance interval is four weeks.

**Test report:**

TÜV Rheinland Energie und Umwelt GmbH, Köln  
Report No.: 936/21216218/A of 14 October 2011



Publication in the German Federal Gazette: BAnz AT 20.07.2012 B11, chapter IV notification 12,

Announcement by UBA from 06 July 2012:

**12 Notification as regards Federal Environmental Agency notice of 23 February 2012 (Federal Journal (BAnz.) p. 920, Chapter I, No. 1.2)**

The measuring system formally known as PCME STACK 181 WS for dust manufactured by PCME Ltd. is now named: PCME QAL 181 WS

Statement of TÜV Rheinland Energie und Umwelt GmbH of 12 March 2012

Publication in the German Federal Gazette: BAnz AT 14.03.2016 B7, chapter V notification 26,

Announcement by UBA from 18 February 2016:

**26 Notification as regards Federal Environment Agency (UBA) notices of 23 February 2012 (BAnz. p. 920, chapter I number 1.2) and of 6 July 2012 (BAnz AT 20.07.2012 B11, chapter IV notification 12)**

The current software version of the measuring equipment PCME QAL 181 WS for total dust of PCME Ltd. is for:

controller software: 8.45

sensor software: 2.06

Statement of TÜV Rheinland Energie und Umwelt GmbH of 22 October 2015

### Certified product

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

The measuring system PCME QAL 181 WS is an extractive dust measuring system.

The complete system consists of the main unit, a scattered light sensor and a control unit. The PCME QAL 181 WS operates as a bypass system. The dust concentration is determined by the principle of scattered light measurement.

The system continuously takes samples of exhaust gas containing wet water drops, by creating a measuring flow over the PCME QAL 181 WS sensor head through an air current over an air hopper causing a pressure difference. From the exhaust gas a partly gas flow is sucked using a measuring gas probe. The sample gas flow is lead over a heat chamber, which causes the water drops to evaporate, which eliminates their influence on the dust measuring values. The temperature of the sample gas flow is approx. 280 °C.

The software versions are:

Controller software: 8.45

Sensor software: 2.06.

### 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 can be applied to the product or used in publicity material 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: [qal1.de](http://qal1.de).

Certification of PCME QAL 181 WS for dust is based on the documents listed below and the regular, continuous monitoring of the Quality Management System of the manufacturer:

**Initial certification according to EN 15267**

Certificate No. 0000035013: 16 March 2012  
Expiry date of the certificate: 01 March 2017

Test report: 936/21216218/A of 14 October 2011  
TÜV Rheinland Energie und Umwelt GmbH, Cologne  
Publication: BAnz. 02 March 2012, No. 36, p. 920, chapter I, No. 1.2  
Announcement by UBA from 23 February 2012

**Notifications according to EN 15267**

Certificate No. 0000035013\_01: 20 August 2012  
Expiry date of the certificate: 01 March 2017

Statement of TÜV Rheinland Energie und Umwelt GmbH dated 12 March 2012  
Publication: BAnz AT 20.07.2012 B11, chapter IV notification 12  
Announcement by UBA from 06 July 2012  
(new system name)

Statement of TÜV Rheinland Energie und Umwelt GmbH, Cologne of 22 October 2015  
Publication: BAnz AT 14.03.2016 B7, chapter V notification 26  
Announcement by UBA from 18 February 2016  
(new software version)

**Renewal of the certificate**

Certificate No. 0000035013\_02: 28 February 2017  
Expiry date of the certificate: 01 March 2022



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

**Measuring system**

Manufacturer	PCME Ltd.
Name of measuring system	PCME STACK 181 WS
Serial number of the candidates	38654 / 38655
Measuring principle	Scattered light extractiv

**Test report**

Test laboratory	TÜV Rheinland
Date of report	2011-10-14

**Measured component**

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

**Tested parameter**

	u	u <sup>2</sup>
Standard deviation from paired measurements under field conditions *	u <sub>D</sub> 0.127 mg/m <sup>3</sup>	0.016 (mg/m <sup>3</sup> ) <sup>2</sup>
Lack of fit	u <sub>lof</sub> 0.081 mg/m <sup>3</sup>	0.007 (mg/m <sup>3</sup> ) <sup>2</sup>
Zero drift from field test	u <sub>d,z</sub> 0.130 mg/m <sup>3</sup>	0.017 (mg/m <sup>3</sup> ) <sup>2</sup>
Span drift from field test	u <sub>d,s</sub> -0.217 mg/m <sup>3</sup>	0.047 (mg/m <sup>3</sup> ) <sup>2</sup>
Influence of ambient temperature at span	u <sub>t</sub> 0.006 mg/m <sup>3</sup>	0.000 (mg/m <sup>3</sup> ) <sup>2</sup>
Influence of supply voltage	u <sub>v</sub> 0.021 mg/m <sup>3</sup>	0.000 (mg/m <sup>3</sup> ) <sup>2</sup>
Influence of sample gas flow	u <sub>p</sub> 0.078 mg/m <sup>3</sup>	0.006 (mg/m <sup>3</sup> ) <sup>2</sup>
Uncertainty of reference material at 70% of certification range	u <sub>rm</sub> 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 <sub>c</sub> )	$u_c = \sqrt{\sum (u_{max,j})^2}$	0.33 mg/m <sup>3</sup>
Total expanded uncertainty	$U = u_c * k = u_c * 1.96$	0.64 mg/m <sup>3</sup>

**Relative total expanded uncertainty**

<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>6.4</b>
<b>Requirement of EN 15267-3</b>	<b>U in % of the ELV 10 mg/m<sup>3</sup></b>	<b>30.0</b>
	<b>U in % of the ELV 10 mg/m<sup>3</sup></b>	<b>22.5</b>