

CERTIFICATE

on Product Conformity (QAL1)

Number of Certificate: 0000035018

Certified AMS: Oxatex 3107 C67 for O₂

Manufacturer: FIVES PILLARD
13, rue Raymond Teissère
13272 Marseille Cedex 8
France

Test Institute: TÜV Rheinland Energie und Umwelt GmbH

**This is to certify that the AMS has been tested
and found to comply with:**

**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
(see also the following pages).



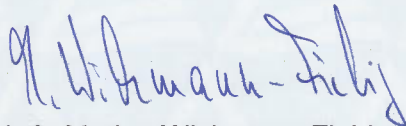
- EN 15267-3 tested
- QAL1 certified
- TUV approved
- Annual inspection

Publication in the German Federal Gazette
(BAnz.) of 20 July 2012

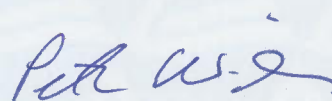
The certificate is valid until:
19 July 2017

Umweltbundesamt
Dessau, 20 August 2012

TÜV Rheinland Energie und Umwelt GmbH
Köln, 17 August 2012



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51105 Köln

Accreditation according to EN ISO/IEC 17025 and certified according to ISO 9001:2008.

Test report:	936/21212141/A of 20 March 2012
First certification:	20 July 2012
Validity ends:	19 July 2017
Publication:	BAnz AT 20 July 2012 B11, chapter II, No. 1.1

Approved application

The tested AMS is suitable for use at combustion plants according to EC directive 2001-80-EC, at waste incineration plants according to EC directive 2000-76-EC and other plants requiring official approval. The tested ranges have been chosen with respect to 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 an incineration plant.

The AMS is approved for an ambient temperature range of -20 °C to +50 °C.

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 936/21212141/A of 20 March 2012 of TÜV Rheinland Energie und Umwelt GmbH
- suitability announced by the German Environmental Agency (UBA) as the relevant body
- the ongoing surveillance of the product and the manufacturing process
- publication in the German Federal Gazette: BAnz AT 20 July 2012 B11, chapter II, No. 1.1

AMS name:

Oxatex 3107 C67 for O₂

Manufacturer:

Fives Pillard, Marseille, France

Approval:

For measurements at plants requiring official approval (i. e. plants in 2000-76-EC, waste incineration directive and 2001-80-EC large combustion plants directive)

Measuring ranges during the suitability test:

Component	Certification range	Unit
O ₂	0 – 20.9	Vol.-%

Software version:

V 3.1

Restrictions:

None

Remarks:

1. The maintenance interval is four weeks.
2. For peripheral parameters characterised by a high moisture content in combination with a high content of dust or a high dust content with a tendency of sticking, the filter needs to be checked more frequently.

Test report:

TÜV Rheinland Energie und Umwelt GmbH, Köln
Report No.: 936/21212141/A of 20 March 2012

Certified product

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

The Oxatex 3107 C67 measuring system measures O₂ in the measuring range of 0 – 20.9 Vol.-% using a zirconium dioxide probe.

The measuring instrument is comprised of a sensor with a heater, a flue gas inlet tube, a dissipater and the rear housing comprising electronics such as a display and an infra-red remote control. Additional optional test gas bottles with a suitable flow regulator are available.

Test gas is brought to the sensor due to natural circulation of at least 0.5m/s which is led into the inlet tube by a deflector situated at its tip.

The flue gas inlet tube is divided into two by the extension of the deflector, which forms an angle of 135° with the gas flow direction. This way, flue gas enters the inlet tube on the side facing the flue gas and leaves the tube on the opposite side.

The sensor is situated near the rear housing which is connected to the probe. The sensor comprises an electrode in contact with the gas to be measured and an electrode in contact with the reference gas. The test gas and the reference gas are separated by a layer of zirconium dioxide.

At high temperatures, zirconium dioxide becomes a conductor of oxygen ions.

The difference in oxygen content of the gasses on each side of the zirconium dioxide generates a voltage between the electrodes. According to Nernst's law, this voltage is proportional to the oxygen content of the gas being measured. The rear housing on the OXATEX 3107 C67, which is connected to the sensor, has the electronics required for sensor signal processing.

Energy supply is ensured via a ring lock circular connector at the front of the electronics housing. This is also where analogue and digital signal outputs are situated.

A dissipater situated between the flue gas inlet tube and the rear housing. This avoids an over-heating of the electronics housing.

The measuring system is configured using an infra-red remote control. For this purpose, a display board is integrated into the electronics housing.

The current oxygen concentration as Vol.% is displayed during the operation of the measuring system. Furthermore, signal lamps indicate if certain limit values are exceeded.

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 Energie und Umwelt 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 Energie und Umwelt GmbH. With revocation of the publication the certificate loses its validity. After the expiration of the validity of the certificate and on requests of the TÜV Rheinland Energie und Umwelt GmbH this document shall be returned and the certificate mark must not be employed anymore.

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

Certification of Oxatex 3107 C67 for O₂ 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. 0000035018: 20 August 2012

Validity of the certificate: 19 July 2017

Test report: 936/21212141/A of 20 March 2012

TÜV Rheinland Immissionsschutz und Energiesysteme GmbH, Köln

Publication: BAnz AT 20 July 2012 B11, chapter II, No. 1.1

Announcement by UBA from 06 July 2012

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

Measuring system

Manufacturer	Fives Pillard
Name of measuring system	Oxatex 3107 C67
Serial number of the candidates	09020117 / 09020118 / 10050138 / 10050142/ 11090196 / 11090200
Measuring principle	zirconium oxide

Test report

Test laboratory	TÜV Rheinland
Date of report	2012-03-20

Measured component

Certification range	O ₂ 0 - 20.9 Vol.-%
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Evaluation of the cross sensitivity (CS)

(system with largest CS)

Sum of positive CS at zero point	0.00 Vol.-%
Sum of negative CS at zero point	0.00 Vol.-%
Sum of positive CS at reference point	0.17 Vol.-%
Sum of negative CS at reference point	0.17 Vol.-%
Maximum sum of cross sensitivities	0.17 Vol.-%
Uncertainty of cross sensitivity	0.100 Vol.-%

Calculation of the combined standard uncertainty

Tested parameter

	u	u ²
Standard deviation from paired measurements under field conditions *	u _D 0.088 Vol.-%	0.008 (Vol.-%) ²
Lack of fit	u _{of} 0.058 Vol.-%	0.003 (Vol.-%) ²
Zero drift from field test	u _{d,z} 0.100 Vol.-%	0.010 (Vol.-%) ²
Span drift from field test	u _{d,s} 0.120 Vol.-%	0.014 (Vol.-%) ²
Influence of ambient temperature at span	u _t 0.087 Vol.-%	0.008 (Vol.-%) ²
Influence of supply voltage	u _v 0.015 Vol.-%	0.000 (Vol.-%) ²
Cross sensitivity (interference)	u _i 0.100 Vol.-%	0.010 (Vol.-%) ²
Influence of sample pressure	u _b 0.104 Vol.-%	0.011 (Vol.-%) ²
Uncertainty of reference material at 70% of certification range	u _{rm} 0.169 Vol.-%	0.029 (Vol.-%) ²

* The larger value is used :

"Repeatability standard deviation at span" or

"Standard deviation from paired measurements under field conditions"

Combined standard uncertainty (u _c)	$u_c = \sqrt{\sum (u_{max,j})^2}$	0.30 Vol.-%
Total expanded uncertainty	$U = u_c * k = u_c * 1.96$	0.60 Vol.-%

Relative total expanded uncertainty

Requirement of 2000/76/EC and 2001/80/EC	U in % of the range 20.9 Vol.-%	2.9
Requirement of EN 15267-3	U in % of the range 20.9 Vol.-%	7.5

** For this component no requirements in the EC-directives 2001/80/EG und 2000/76/EG are given.
The chosen value is recommended by the certification body.