

CERTIFICATE

of Product Conformity (QAL1)

Certificate No.: 0000035009_01

Certified AMS: GRAPHITE 52M for TOC

Manufacturer: Environnement S.A
111 Boulevard Robespierre
78304 Poissy cedex
France

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 0000035009

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

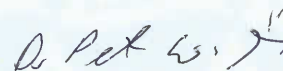
German Federal Environment Agency
Dessau, 28 February 2017



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

www.umwelt-tuv.eu
tre@umwelt-tuv.eu
Tel. + 49 221 806-5200

TÜV Rheinland Energy GmbH
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

Certificate:
0000035009_01 / 28 February 2017

Test report: 936/21214670/A of 05 October 2011
Initial certification: 02 March 2012
Expiry date: 01 March 2022
Certificate renewal (previous certificate 0000035009 dated from 16 March 2012 with validity up to the 01 March 2017)
Publication: BAnz. 02 March 2012, No. 36, p. 920, chapter I, No. 2.2

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-month field test at a waste incineration plant.

The AMS is approved for an ambient temperature range of +5 °C to +40 °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 936/21214670/A of 05 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. 2.2, Announcement by UBA from 23 February 2012:

AMS name:

GRAPHITE 52M for TOC

Manufacturer:

Environnement S. A, Poissy, France

Field of application:

For measurements at plants requiring official approval and plants according to 27th BImSchV

Measuring ranges during the suitability test:

Component	Certification range	Supplementary measurement ranges	Unit
TOC	0 - 15	0 - 500	mg/m ³

Software version:

Version V2.19

Restrictions:

None

Notes:

1. The maintenance interval is four weeks.
2. The measuring device performs a daily zero calibration.
3. For operation H₂/He fuel gas mixture is required.

Test report:

TÜV Rheinland Energie und Umwelt GmbH, Cologne
Report No.: 936/21214670/A of 05 October 2011

Publication in the German Federal Gazette: BAnz AT 26.08.2015 B4, chapter V notification 26, Announcement by UBA from 22 July 2015:

26 Notification as regards Federal Environment Agency (UBA) notices of 23 February 2012 (Federal Gazette (BAnz.) p. 920, chapter I number 2.2)

The current software version for the GRAPHITE 52M measuring system for TOC, manufactured by Environnement S.A., is:

v2.21 (Calculation process)
v3.1.b (Display process)

The material used for thermal isolation of the furnace was changed from Kerlane to glass fibre.

Statement of TÜV Rheinland Energie und Umwelt GmbH of 14 March 2015

Certified product

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

The 52M Graphite uses a flame ionization detector (FID) to measure TOC. The system works as an extractive system, i.e. the sample gas is drawn through a gas sampling probe from the gas duct and fed to the analyzer via a (heated) sampling tube.

The GRAPHITE 52M in its approved version consists of the following parts:

1. Measurement probe Environnement HOFI
2. Heated sample gas line (10 m length)
3. GRAPHITE 52M analyzer
4. Software versions v2.21 (Calculation process) and v3.1.b (Display process)

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.

Certification of GRAPHITE 52M for TOC 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. 0000035009: 16 March 2012
Expiry date of the certificate: 01 March 2017

Test report: 936/21214670/A of 05 October 2011
TÜV Rheinland Energie und Umwelt GmbH, Cologne
Publication: BAnz. 02 March 2012, No. 36, p. 920, chapter I, No. 2.2
Announcement by UBA from 23 February 2012

Notifications according to EN 15267

Statement of TÜV Rheinland Energie und Umwelt GmbH of 14 March 2015
Publication: BAnz AT 26.08.2015 B4, chapter V notification 26
Announcement by UBA from 22 July 2015
(new software version, thermal insulation)

Renewal of the certificate

Certificate No. 0000035009_01: 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	Environnement S.A
Name of measuring system	Graphite 52M
Serial number of the candidates	703 / 705
Measuring principle	FID

Test report

Test laboratory	936/21214670/A
Date of report	TÜV Rheinland
	2011-10-05

Measured component

Certification range	TOC
	0 - 15 mg/m ³

Evaluation of the cross sensitivity (CS)

(system with largest CS)

Sum of positive CS at zero point	0.38 mg/m ³
Sum of negative CS at zero point	-0.24 mg/m ³
Sum of positive CS at reference point	0.51 mg/m ³
Sum of negative CS at reference point	-0.58 mg/m ³
Maximum sum of cross sensitivities	-0.58 mg/m ³
Uncertainty of cross sensitivity	-0.335 mg/m ³

Calculation of the combined standard uncertainty

Tested parameter

	u	u ²
Standard deviation from paired measurements under field conditions *	u _D 0.077 mg/m ³	0.006 (mg/m ³) ²
Lack of fit	u _{lof} -0.069 mg/m ³	0.005 (mg/m ³) ²
Zero drift from field test	u _{d,z} 0.060 mg/m ³	0.004 (mg/m ³) ²
Span drift from field test	u _{d,s} -0.152 mg/m ³	0.023 (mg/m ³) ²
Influence of ambient temperature at span	u _t 0.173 mg/m ³	0.030 (mg/m ³) ²
Influence of supply voltage	u _v 0.015 mg/m ³	0.000 (mg/m ³) ²
Cross sensitivity (interference)	u _i -0.335 mg/m ³	0.112 (mg/m ³) ²
Influence of sample gas flow	u _p -0.034 mg/m ³	0.001 (mg/m ³) ²
Uncertainty of reference material at 70% of certification range	u _{rm} 0.121 mg/m ³	0.015 (mg/m ³) ²
Variation of response factors (TOC)	u _{rf} 0.000 mg/m ³	0.000 (mg/m ³) 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)

$$u_c = \sqrt{\sum (u_{max,j})^2} \quad 0.44 \text{ mg/m}^3$$

Total expanded uncertainty

$$U = u_c * k = u_c * 1.96 \quad 0.87 \text{ mg/m}^3$$

Relative total expanded uncertainty

Requirement of 2000/76/EC and 2001/80/EC

Requirement of EN 15267-3

U in % of the ELV 10 mg/m³ **8.7**

U in % of the ELV 10 mg/m³ **30.0**

U in % of the ELV 10 mg/m³ **22.5**