Umwelt Bundes Amt
For our Environment

TÜVRheinland®
Precisely Right.

CERTIFICATE

on Product Conformity (QAL1)

Number of Certificate: 0000035009

Certified AMS:	GRAPHITE 52M for TOC
Manufacturer:	Environnement S.A 111 Boulevard Robespierre 78304 Poissy cedex 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: 2008 and EN 14181: 2004

Certification is awarded in respect of the conditions stated in this certificate (see also the following pages).

www.tuv.com TÜVRheinland® ID: 0000035009

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

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

The certificate is valid until: 01 March 2017

Umweltbundesamt
Dessau, 16 March 2012

i. A. Dr. Hans-Joachim Hummel

TÜV Rheinland Energie und Umwelt GmbH
Köln, 15 March 2012

ppa. Dr. Peter Wilbring

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TÜV Rheinland Energie und Umwelt GmbH
Am Grauen Stein
51105 Köln

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

Test report:	936/21214670/A of 05 October 2011
First certification:	02 March 2012
Validity ends:	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 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 waste incinerator.

The AMS is approved for an ambient temperature range of +5 °C to +40 °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 936/21214670/A dated 05 October 2011 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. 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 (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	Supplementary measurement ranges	Unit
TOC	0 - 15	0 - 500	mg/m³

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 H_2/He fuel gas mixture is required.

Test report:
TÜV Rheinland Energie und Umwelt GmbH, Köln
Report-No.: 936/21214670/A dated 5 October 2011

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

The 52M Graphite uses a flame ionization detector (FID) to measure TOC. The system works as an extraktive 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

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 looses 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 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

Validity of the certificate: 01 March 2017

Test report: 936/21214670/A of 05 October 2011
TÜV Rheinland Energie und Umwelt GmbH, Köln

Publication: BAnz. 02 March 2012, No. 36, p. 920, chapter I, No. 2.2:
Announcement by UBA from 23 February 2012

Umwelt Bundes Amt
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Certificate:
0000035009 / 16 March 2012

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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	936/21214670/A
Test laboratory	TÜV Rheinland
Date of report	2011-10-05
Measured component	Gesamt-C
Certification range	0 - 15 mg/m³

Evaluation of the cross sensitivity (CS)
(system with largest CS)

Sum of positive CS at zero point	0.38	mg/m³
Sum of negative CS at zero point	-0.24	mg/m³
Sum of postive CS at reference point	0.51	mg/m³
Sum of negative CS at reference point	-0.58	mg/m³
Maximum sum of cross sensitivities	-0.58	mg/m³
Uncertainty of cross sensitivity	-0.335	mg/m³

Calculation of the combined standard uncertainty

Tested parameter		u		u²	
Standard deviation from paired measurements under field conditions *	u_D	0.077	mg/m³	0.006	(mg/m³)²
Lack of fit	u_{lof}	-0.069	mg/m³	0.005	(mg/m³)²
Zero drift from field test	$u_{d,z}$	0.060	mg/m³	0.004	(mg/m³)²
Span drift from field test	$u_{d,s}$	-0.152	mg/m³	0.023	(mg/m³)²
Influence of ambient temperature at span	u_t	0.173	mg/m³	0.030	(mg/m³)²
Influence of supply voltage	u_v	0.015	mg/m³	0.000	(mg/m³)²
Cross sensitivity (interference)	u_i	-0.335	mg/m³	0.112	(mg/m³)²
Influence of sample gas flow	u_p	-0.034	mg/m³	0.001	(mg/m³)²
Uncertainty of reference material at 70% of certification range	u_{rm}	0.121	mg/m³	0.015	(mg/m³)²
Variation of response factors (TOC)	u_{rf}	0.000	mg/m³	0.000	(mg/m³)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)	$u_c = \sqrt{\sum (u_{max,j})^2}$	0.44	mg/m³
Total expanded uncertainty	$U = u_c * k = u_c * 1.96$	0.87	mg/m³

Relative total expanded uncertainty	**U in % of the ELV 10 mg/m³**	**8.7**
Requirement of 2000/76/EC and 2001/80/EC	**U in % of the ELV 10 mg/m³**	**30.0**
Requirement of EN 15267-3	U in % of the ELV 10 mg/m³	22.5