PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

Graphite 52M FID Analyser

Manufactured by:

Envea
111 Boulevard Robespierre
78304 Poissy Cedex
France

has been assessed by Sira Certification Service
And for the conditions stated on this certificate complies with:

MCERTS Performance Standards for Continuous Emission Monitoring Systems (CEMS) and T-CEMS, Version 4 dated July 2018
EN15267-3:2007,
& QAL 1 as defined in EN 14181: 2014

Certification Ranges :

TOC	0 to 15 mg/m^3
	0 to 500 mg/m^3

Project No.	:	16A25633 & 70210654
Certificate No	:	Sira MC060082/10
Initial Certification	:	22 September 2006
This Certificate issued	:	18 February 2019
Renewal Date	:	20 September 2021

Emily Alexander
Environmental Project Engineer

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service
Unit 6, Hawarden Industrial Park
Hawarden, Deeside, CH5 3US
Tel: +44 (0)1244 670 900

Form 1335
Issue 5

Certificate Contents

Approved Site Application

Any potential user should ensure, in consultation with the manufacturer, that the monitoring system is suitable for the intended application. For general guidance on monitoring techniques refer to the Environment Agency Monitoring Technical Guidance Notes available at www.mcerts.net

On the basis of the assessment and the ranges required for compliance with EU Directives this instrument is considered suitable for use on waste incineration and large coal-fired combustion plant applications. This CEM has been proven suitable for its measuring task (parameter and composition of the flue gas) by use of the QAL 1 procedure specified in EN14181, for IED Chapter III and IED Chapter IV applications for the ranges specified. The lowest certified range for each determinand shall not be more than 1.5X the daily average emission limit value (ELV) for IED Chapter IV applications, and not more than 2.5X the ELV for IED Chapter III and other types of application.

Operation requires H2/He combustion gas mixture. Fuel type H_2/He mix (40% / 60%) was used during the field test.

Basis of Certification

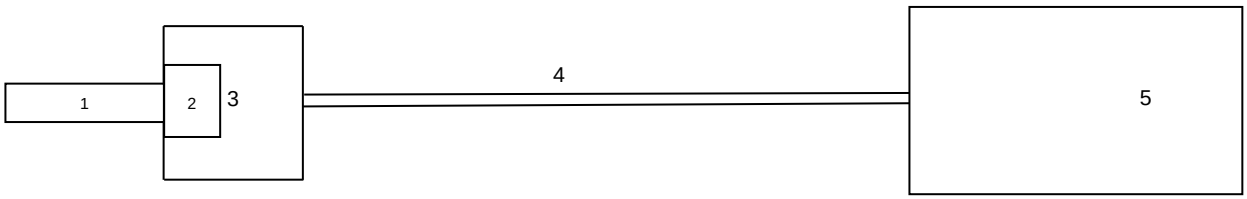
This certification is based on the following Test Report(s) and on Sira's assessment and ongoing surveillance of the product and the manufacturing process:

TUV Rheinland Report Number 936/21214670/A dated October 5 2011

Product Certified

The Graphite 52M FID measuring system consists of the following parts:

- Heated measurement probe with HOFI cabinet
- Heated sample gas line (10 m length)
- Graphite 52M analyzer



1. Sample Probe	2. Heated Filter	3. Gas Conditioning	4. Heated Sampling line	5. Analyser
Model: Envea	Model: Envea	Model: Envea / HOHI	Model: Heated line 180°C	Model: GRAPHITE 52M

Allowable variations could include:

- A different brand or model of sampling system of the same type, provided that there is evidence the alternative system works with similar types of CEM.
- Additional manifolds and heated valves used to allow more than one analyser to share a sampling system.

This certificate applies to all instruments fitted with software version V2 (serial number 405) onwards.

Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: +5°C to +40°C
Instrument IP rating: IP40

Note: For outdoor installations the analyser needs to be mounted into an IP65 environment. If the instrument is supplied with an enclosure, then the ambient temperature shall be monitored inside the enclosure to ensure that it stays within the above ambient temperature range.

Unless otherwise stated the evaluation was carried out on the certification range TOC 0 to 15 mg/m^3

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time						
TOC					32 s	<200s
TOC (0 to 500 mg/m^3)					27 s	<200s
Repeatability standard deviation at zero point						
TOC	0.10					<2.0%
Repeatability standard deviation at reference point						
TOC	0.10					<2.0%
Lack-of-fit						
TOC		-0.80				<2.0%
TOC (0 to 500 mg/m^3)		-0.60				<2.0%
Influence of ambient temperature zero point						
TOC			1.40			<5.0%
Influence of ambient temperature reference point						
TOC			2.00			<5.0%

Certificate No : Sira MC060082/10
This Certificate issued : 18 February 2019

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Influence of sample gas flow for extractive CEMS (45 L/h to 120 L/h)						
TOC	-0.40					<2.0%
Influence of voltage variations 190 to 250V						
TOC	0.10					<2.0%
Influence of vibration (10 to 60Hz (±0.3mm), 60 to 150Hz at 19.6m/s^2)					Not applicable	To be reported
Cross-sensitivity at zero with interferents: O_2, H_2O, CO, CO_2, CH_4, N_2O, NO, NO_2, NH_3, SO_2, HCl,						
TOC				2.54		<4.0%
TOC (EN 12619)				2.53		<4.0%
Cross-sensitivity at reference with interferents: O_2, H_2O, CO, CO_2, CH_4, N_2O, NO, NO_2, NH_3, SO_2, HCl,						
TOC				-3.87		<4.0%
TOC (EN 12619)				3.94		<4.0%
Effect of oxygen			1.73			<2.0%
Response factors						
Methane					1.05-1.07	0.9 to 1.2
Aliphatic hydrocarbons					0.90-1.08	0.9 to 1.1
Aromatic hydrocarbons					0.83-0.99	0.8 to 1.1
Dichloromethane					0.96-1.01	0.75 to 1.15
Aliphatic alcohols					0.77-0.83	0.7 to 1.0
Ester and ketones					0.72-0.74	0.7 to 1.0
Organic acids					0.88-0.91	0.5 to 1.0
Measurement uncertainty					Guidance - at least 25% below max permissible uncertainty	
TOC					8.7%	22.5%
Calibration function (field)						
TOC					0.9971-0.9991	>0.90

Certificate No : Sira MC060082/10
This Certificate issued : 18 February 2019

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time (field) TOC					34 s	<200s
Lack of fit (field) TOC TOC (0 to 500 mg/m^3)		-1.00 -0.87				<2.0% <2.0%
Maintenance interval					4 weeks	>8 days
Zero and Span drift requirement	The Graphite 52M carries out zero and span adjustment daily.					Clause 6.13 & 10.13 Manufacturer shall provide a description of the technique to determine and compensate for zero and span drift.
Change in zero point over maintenance interval TOC		0.69				<3.0%
Change in reference point over maintenance interval TOC			-1.75			<3.0%
Availability					99.5%	>95%
Reproducibility TOC		1.00				<3.3%

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Description

The Graphite 52M is a totally heated TOC analyser which uses FID (Flame Ionisation Detector) to measure organic gaseous compounds in an extractive system. The system is heated throughout at a nominal temperature of 180°C (adjustable) and the analyser is coupled to a heated line.

The unit is used with a heated sampling system with a heated sample probe, a heated filter and a heated line.

General Notes

1. This certificate is based upon the equipment tested. The Manufacturer is responsible for ensuring that on-going production complies with the standard(s) and performance criteria defined in this Certificate. 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 system shall be subject to regular surveillance according to 'Regulations Applicable to the Holders of Sira Certificates'. The design of the product certified is defined in the Sira Design Schedule V08 for certificate No. Sira MC060082/09

2. If certified product is found not to comply, Sira Certification Service should be notified immediately at the address shown on this certificate.

3. The Certification Marks that can be applied to the product or used in publicity material are defined in 'Regulations Applicable to the Holders of Sira Certificates'.

4. This document remains the property of Sira and shall be returned when requested by the company.