PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

CEMSuite v5

Manufactured by:

Envirosoft Ltd

Unit 6, Markham Vale Environment Centre
Markham Lane
Markham Vale
Chesterfield
Derbyshire S44 5HY

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

**MCERTS Quality and Performance Standards for
Environmental Data Management Software, Version 4, dated December 2017
in respect of:**

Part A - Generic Software Quality
Part B - Data Management General Aspects
Part C1 - CEMS Data Management Applications – Generic Requirements
Part C2 - CEMS Data Management Applications - EN14181 Requirements

Project No.	:	674/0240 & 16S32650 & 70203569
Certificate No	:	Sira MC080130/04
Initial Certification	:	04 November 2008
This Certificate issued	:	03 November 2018
Renewal Date	:	02 November 2023

Emily Alexander
Environmental Project Engineer

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service

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Certificate Contents

Approved Site Application

Any potential user of the certified software should:
1. Ensure that it is suitable for the platform on which it will be installed (if necessary in consultation with the software producer)
2. Ensure that the selection and operation of the software is appropriate to the application

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:

EnviroSoft CEMQual Software MCERTS Assessment Report, Issue D, 10/03/2008
EnviroSoft CEMSuite v4.0 Software MCERTS Assessment Report, Issue B, 20/09/2011
Envirosoft CEMSuite v4.5 Software MCERTS Surveillance Audit Report, Issue 1, 29/112013
Envirosoft CEMSuite v5.0 Software MCERTS Surveillance Audit Report, Issue 1 dated 26/10/2018

Carried out under Sira project reference 674/0240, 16S32650 & 70203569 and assessments reports referred to therein

Product Certified

Product	Version	Function
CEMSuite	5.0	This product comprises the programs listed below. Internally, CEMSuite relies on its CEMServer data handling software, which is included in the scope of certification.
• CEMForm	5.0	Real time and historical data analysis for plant operators
• CEMPort	5.0	General, non-specific report production
• CEMQual	5.0	QAL3 analysis
• WID Report	5.0	Waste incineration directive reporting for operators
• LCPD	5.0	Large combustion plant directive reporting for operators
CEMServer	5.0	This product comprises the programs listed below. CEMServer acquires, stores and transmits data in real time to the CEMSuite programs
• CEMComm	5.0	Communication program collecting data from analysers and data acquisition modules
• CEMSync	5.0	DSU to PC historic data synchronisation
• CEMBus	5.0	DCS / Plant System interface program
• CEMSocket	5.0	Multi DSU real time data synchronisation program

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Software Modifications

In the event of a major release the developer shall provide brief supporting evidence to the Certification Body who will advise whether recertification is necessary.

Certified Performance

With respect to part A of the standard the software is compliant with the generic quality requirements.

With respect to parts B, C1, C2 of the standard the software is compliant with the performance requirements. The product contains the following features summarised below;

- The CEMSuite application has the ability to carry out the following functions:

- CEMSuite gathers and stores data on a separate primary data storage unit at a selectable frequency of between 2 and 10 seconds.

- CEMSuite performs calculations in accordance with EN14181 (Clause C2.2).

- CEMSuite allows users to view real time and historical data with the ability to create standard or custom format reports and trends of historical data. Reports can be printed, saved to JPEG, PDF or exported as a comma separated text file.

- CEMSuite can run automated or manual EN14181 – QAL3 audits, generating Shewhart, Cusum (Drift & Precision) or EWMA reports for the authorities (Clause C2.1).

- Standard QAL2 calibration function and EA designed WID and LCPD Reports (Clause C2.3).

- Custom reports can be designed to match permit requirements.

- Multiple primary data storage units and composite group structures allows redundant system configuration.

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Description

Measurement Capability;

CEMSuite software can accept data for 12 measurements points, each containing up to 16 measurands - providing potentially 160 data channels. These are grouped into 'pages' of data, where each page typically has common normalisation parameters. Many different types of measurement are possible, including: Gas ppm wet; Gas ppm dry; Gas mg/m^3 wet; Gas mg/m^3 dry; Opacity %; Tribo output; Dust extinction; Smoke; Visibility; differential pressure; Flow

This is not exhaustive and may be added to with a simple program modification.

Data Storage;

- Each channel is stored with 16 bit resolution for data (+/- 32767) and with 8 bit validity information.
- Storage frequency selectable and dependent on system complexity; however, typically set to between 5 and 10 seconds.
- Data archive capacity is greater than 10 years.

Normalisation;

Oxygen

Normally the biggest effect for normalisation is from the oxygen level, and this reference level varies between processes:

Gas and oil: 3%
Coal: 6%
Waste: 11%
Gas turbines: 15%

CemSuite uses the following formula to correct for air dilution:

Correction =   (21 - O$_2$ reference level %) / (21 - actual dry O$_2$ level %)

Water Vapour

Where measurements are made on a wet basis (i.e., they have not been dried by a chiller or filter before analysis) they can be corrected down to a dry measurement. The formula below is used by the software:

Correction   =   (100 %) / (100 - actual H$_2$O level %)

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Temperature

The reference temperature is usually 00C (273K) for Europe but may be 250C for the Americas. Most gas measurements are already corrected to standard temperature and pressure (STP) and so no correction applies. For dust and other measurements, however, the following formula applies:

Correction = (Actual temperature C + 273) / (reference temperature C + 273)

Pressure

Most gas levels are reported at STP (see above) and no further corrections apply. For dust and other in-situ measurements, however, correction may be required. In such cases, the following formula applies:

Correction = (101.3 kPa) / (actual Pressure kPa)

Averaging

The CEMSuite programs consider the data down to each minute, each minute data point being the average of all data within that minute; most systems are set to gather data every 5 - 10 seconds.

For longer term averages, two averaging bases are provided; a rolling average and a block average. Data during plant off periods (see below) or invalid data are not used when calculating the average values. Furthermore, there must be 2/3 (66%) of valid data for any given averaging time, i.e., for a one hour average, there must be 40 minutes of valid data while the plant was in operation for the averaged data to be considered as valid.

The 2/3 requirement is configurable, but usually set at this level.

Rolling average

A rolling average considers the data on a minute-by-minute basis; for each and every minute, the average is calculated from the preceding data for the selected average time.

Block average

Each block average is considered individually for the period; should a 1-hour average be selected, then the day will consist of 24 block averages. Each average will end at 59 minutes past the hour.

Average 1	00:00	to	00:59
Average 2	01:00	to	01:59
Average 3	02:00	to	02:59
Average 24	23:00	to	23:59

Should a 30 minute average be used, then each will end at 29 and 59 minutes past the hour. As the average builds up during its period, it will be considered valid should 66% of the expected data points be available. So, for a 1 hour average at 00:29, there should be 30 points, so it will be considered valid if 20 minutes or more of valid data points exist.

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 for certificate No. Sira MC080130/04

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.

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