



ENVIRONMENT
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PRODUCT CONFORMITY CERTIFICATE

This is certify that the

OXITEC 5000/ SME 5 Oxygen Analyser

manufactured by:

ENOTEC GmbH

*Höher Birken 6
51709 Marienheide
Germany*

has been assessed by Sira Certification Service
and found to comply with:

MCERTS Performance Standards for Continuous Emission Monitoring Systems, Version 2, Revision 1 (April 2003)

Certification Ranges :

O ₂	0 to 6 % vol
O ₂	0 to 12 % vol
O ₂	0 to 25 % vol

Certification is awarded in respect of the conditions stated in this certificate

Project No: 674/0159
Certificate No: Sira MC 050063/00
Initial Certification: 06 October 2005
This Certificate Issued: 06 October 2005
Renewal Date: 05 October 2010

Chief Executive

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service

South Hill, Chislehurst, Kent, BR7 5EH, England
Tel: 020-8467-2636 Fax: 020-8468 1841

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Approved Site Application

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.

Any potential user should ensure, in consultation with the manufacturer, that the emission monitoring system is suitable for the process on which it will be installed. For general guidance on stack emission monitoring techniques refer to Environment Agency Technical Guidance Note M2: Monitoring of stack emissions to air. This is available on the Agency's website at www.environment-agency.gov.uk

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:

TÜV Rheinland, Köln Report No: 936/801002 dated 2nd February 1992
TÜV Rheinland, Köln Report No: 936/809012 dated 4th February 2000
TÜV Rheinland, Köln Statement updated software version dated 25 November 2004

TÜV reports are accepted on the basis of the Environment Agency's document 'MCERTS – Guidance on the acceptance of German type approval test reports for CEMS' Version 2 (October 2003)

Product Certified

The OXITEC 5000 / SME 5 measuring system consists of the following parts:

- Probe KES 2001
- Electronics OXITEC 5000 / SME 5

This certificate applies to all instruments fitted with software version 1.38 onwards.

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Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -20°C to $+50^{\circ}\text{C}$

Performance values are expressed as a percentage of the certification range, 0 to 25 % vol, except for availability and analysis function, and '✓' indicates compliance with MCERTS requirements.

Test	Results expressed as % of max of certification range				Other results	MCERTS specification
	<0.5	<1	<2	<4		
Linearity	✓				-0.09 % vol	$<\pm 0.3\%$ vol
Cross-sensitivity		✓			0.68 % vol	$<\pm 4\%$
Temperature dependent zero shift	✓				0.01%vol/ $^{\circ}\text{C}$	$<\pm 0.5\%$ vol/ $^{\circ}\text{C}$
Temperature dependent span shift	✓				0.02 %vol/ $^{\circ}\text{C}$	$<\pm 0.5\%$ vol/ $^{\circ}\text{C}$
Response time					<30 s	<200s
Detection Limit	✓				0.12 %vol	<0.2%vol
Analysis function (field) ^{Note 3}					99.8 %	>95%
Availability ^{Note3}					99.2 %	>95%
Time dependant zero drift ^{Note 3}					0.01% vol	$<\pm 0.2\%$ vol
Time dependant span drift ^{Note 3}					0.06 % vol	$<\pm 0.2\%$ vol
Vibration test (10 to 60Hz (0.3mm), 60Hz to 150Hz at 19.6m/s ²)					No effect	Not specified
Sample gas pressure					See note 1	To be reported
Sample gas temperature					See note 2	To be reported
Maintenance Interval ^{Note 3}					4 weeks	To be reported

Note 1: Test not applicable as the zirconia cell measures the ratio of the reference and sample partial pressures.

Note 2: Test not applicable as no active detection parts are exposed to the flue gas temperature, the measuring cell is controlled at 840°C

Note 3: Field test: The OXITEC SME-11 (in-situ version) was assessed on the basis of a three month field trial mounted on a waste incinerator. The OXITEC 5000/ SME 5 is deemed equivalent to the SME 11 model.

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Description:

The OXITEC 5000 / SME 5 provides in-situ measurement of the concentration of oxygen in the flue gas of combustion processes and other non-combustible gases by using the EMF (electrical motive force) produced by a temperature-stabilised zirconia cell which indicates the amount of oxygen present. This electric charge is captured on both sides of a membrane with electrodes made of platinum. The measured value is determined according to the Nernst's equation.

The OXITEC 5000 / SME 5 measuring system is the successor of the OXITEC SME-11 (in-situ version). The difference between the two systems is modifications in the electronics.

The probe consists of the probe head, the probe flange, the measuring cell with heating and the protection tube. The filter head has a gas detector plate referred to as a V-shield to avoid dust deposits on the filter.

In the SME 5 electronics, the measured signal is converted and the correct operation of the detector and the supply with reference air and test gas are monitored. Status signals for maintenance and malfunction, limit value alarms and measured ranges can be defined. These signals can transmit the current status of the measuring system to downstream evaluation systems.

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 MC 050063/00.
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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