PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

MERCEM Mercury Analyser

manufactured by:

SICK MAIHAK GmbH
Dr Zimmermann Street 18
88709
Meersburg
Germany

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 Version 2, Revision 1 (April 2003)

Certification Ranges :

Total gaseous mercury: 0 to 45 µg/m³
0 to 75 µg/m³
0 to 100 µg/m³

Project No:	674/0113J
Certificate No:	Sira MC 040047/01
Initial Certification:	10 August 2004
This Certificate Issued:	08 August 2007
Renewal Date:	09 August 2009

Technical Director

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service
12 Acorn Industrial Park, Crayford Road, Crayford
Dartford, Kent, UK, DA1 4AL
Tel: 01322 520500 Fax: 01322 520501

Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: +5°C to +35°C

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

Test	Results expressed as % of certification range				Other results	MCERTS* specification
	<0.5	<1	<2	<4		
Linearity:			a			<±2%
Cross sensitivity:				a		<±4%
Temperature dependent zero drift:	a				See note 1	<0.3%
Temperature dependent span drift:	a				See note 1	<0.3%
Response time:					See note 2	<200s
Detection limit:			a		See note 3	<2%
Accuracy/Analysis function (field):					See note 4	>95%
Availability (field):					96.1%	>95%
Zero shift (field):		a				<2%/week
Span shift (field):		a				<4%/week

* MCERTS performance limit Version 2 Revision 1, April 2003

Note 1: Test performed on measuring range 0 to 100 µg/m³

Note 2: The instrument operates on a cycle time of 180s. During tests the output normally reached 90% of the measured value within 1 cycle, but two cycles were sometimes necessary. This results in a maximum T90-time of 360 sec. The Certification Committee accept this as complying with the MCERTS specification.

Note 3: The detection limit is presented as % of the smallest certification range.

Note 4: During the field trial the analysis function was slightly outside of the specification. The result was considered acceptable as the measurement was within the measurement uncertainty and was 99.0% on a subsequent simulated field test.

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Test	Results expressed as % of certification range				Other results	MCERTS* specification
	<0.5	<1	<2	<4		
Vibration test					See note 5	Not specified
Sample gas pressure					See note 6	To be reported
Sample gas temperature					See note 7	To be reported
Maintenance Interval					1 month	To be reported

* MCERTS performance limit Version 2 Revision 1, April 2003

Note 5: A visual examination did not identify any components in the probe that are likely to be affected by vibration. Hence the test was not carried out.
Note 6: Test not required, as system is an extractive analyser with a pumped sampling system
Note 7: Test not required as no active detection parts are exposed to the flue gas temperature

Field Test Site

The analyser was assessed on the basis of three month trial mounted on two different waste incinerators, one with semi dry flue gas cleaning system and one with wet scrubber.

Approved Site Application

On the basis of these tests this certificate is valid when the instrument is used on waste incineration and large coal-fired combustion plant applications.

However 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. The MCERTS standard gives guidance of process conditions for some other types of plant.

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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	Report No. 936/805012 dated 25th April 1996
TÜV Rheinland	Report No. 936/800005A dated 29th January 2001

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 tested system consists of the following main components:

- Sampling probe with heated filter and heated line
- Heated pump and flow sensor
- Sample gas preparation with wet chemical reduction unit including cooler and amalgamation unit
- Photometer

The software status certified is version 1.24 onwards.

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Description:

MERCEM is an analyser for monitoring total mercury in different types of flue gases. The analysis is performed via cold vapour atomic absorption spectroscopy. The sample gas preparation consists of a wet chemical reduction unit and an amalgamation unit. All mercury in the sample gas is reduced to elemental mercury before the analysis.

MERCEM is a measuring system for monitoring mercury and mercury compounds in waste gas. The sensitivity of the system can be adjusted by adapting an amalgamation process to enable detection in wide measuring ranges and, in particular, very narrow measuring ranges.

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 040047/01.

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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