

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

LaserGas II Monitor

Manufactured by:

NEO Monitors AS

*Solheimveien 62A
N-1473 Lørenskog
Norway*

has been assessed by CSA Group
and for the conditions stated on this certificate complies with:

Environment Agency Guidance

“MCERTS for stack emissions monitoring equipment at industrial installations”

- Continuous emissions monitoring systems (CEMS)

Published 20 October 2020

EN 15267-1:2009, EN15267-2:2009, EN 15267-3:2007

& QAL 1 as defined in EN 14181: 2014

Certification ranges:

HCl 0 to 15 mg/m³ 0 to 90 mg/m³

H₂O 0 to 40 Vol.-% 0 to 30 Vol.-%

Project number: 80132482
Certificate number: Sira MC120206/02
Initial certification: 01 October 2012
This certificate issued: 16 September 2022
Renewal date: 30 September 2027



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Environmental Team Manager

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The MCERTS certificate consists of this document in its entirety.

For conditions of use, please consider all the information within.

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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

This instrument is considered suitable for use on waste incineration and large combustion plants. This CEMS 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. The lowest certified range for each determinand shall not be more than 1.5 times the daily average emission limit value (ELV) for incineration plants, and not more than 2.5 times the ELV for other types of applications.

Basis of Certification

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

TUV Report Report Number: 936/21212540/B dated 09/09/11

Product Certified

The LaserGas II measuring system for HCl and H₂O consists of the following parts:

- Transmitter with purge gas device and evaluation system
- Receiver unit with purge gas device and internal reference cuvette
- Signal cable for connecting the sender and receiver unit
- Voltage supply
- System software version GM6.1d5
- Evaluation software gmw61, version 1.2.5.1 onwards

This certificate applies to all instruments fitted with software version GM6.1d5 onwards (serial number 4266 onwards).

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Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -20°C to +50°C

Instrument IP rating: IP 66

Note: 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 HCl 0 to 15 mg/m³ and H₂O 0 to 40 %vol

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time						
HCl					<2s	<400s
H ₂ O					<2s	<200s
Repeatability standard deviation at zero point						
HCl	0.10					<2.0%
H ₂ O	0.10					<2.0%
Repeatability standard deviation at reference point						
HCl			1.20			<2.0%
H ₂ O	0.50					<2.0%
Lack-of-fit						
HCl		0.93				<2.0%
H ₂ O	-0.25					<2.0%
Influence of ambient temperature zero point						
HCl	0.10					<5.0%
H ₂ O	0.00					<5.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Influence of ambient temperature reference point						
HCl			-1.30			<5.0%
H ₂ O		0.50				<5.0%
Influence of sample gas pressure						
HCl			1.13			<2.0%
H ₂ O		-0.7				<2.0%
Influence of voltage variations 190 to 250V						
HCl	-0.30					<2.0%
H ₂ O		-0.70				<2.0%
Influence of vibration (10 to 60Hz (±0.3mm), 60 to 150Hz at 19.6m/s ²)					No effect	To be reported
Cross-sensitivity at zero with interferents: O ₂ , H ₂ O, CO, CO ₂ , CH ₄ , N ₂ O, NO, NO ₂ , NH ₃ , SO ₂	<0.5					<4.0%
Cross-sensitivity at reference with interferents: O ₂ , H ₂ O, CO, CO ₂ , CH ₄ , N ₂ O, NO, NO ₂ , NH ₃ , SO ₂	<0.5					<4.0%
Excursion of measurement beam of cross-stack in-situ CEMS						
HCl			1.69			<2.0%
H ₂ O		0.79				<2.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Measurement uncertainty						Guidance - at least 25% below max permissible uncertainty
HCl					7.7%	
H ₂ O					4.2%	
Calibration function (field)						
HCl					0.91	>0.90
H ₂ O					0.95	>0.90
Response time (field)						
HCl					2s	<400s
H ₂ O					2s	<200s
Lack of fit (field)						
HCl			1.00			<2.0%
H ₂ O						<2.0%
Maintenance interval					6 months Note 1	>8 days
Zero and Span drift requirement	<p>The CEMS comprises an internal zero check for HCl and H₂O and an internal span check for HCl. This allows zero and span check of the mounted system without dismounting from the duct.</p> <p>The measured signal is frozen and subtracted from the measured values for the check of zero point.</p> <p>An HCl-loaded, sealed cell is introduced to the beam path for the span check of HCl. The cell is mounted in the receiver unit. Prior to span check, the CEM calculated the absorption signal of the gas concentration during normal operation, which is then continuously subtracted from the absorption signal during span check. The resulting signal corresponds to the constant gas concentration multiplied with a factory-set Span-reference-constant within the internal cell. Temperature and pressure conditions are continuously checked by the internal sensors and included in the calculation.</p>					<p>Clause 6.13 & 10.13</p> <p>Manufacturer shall provide a description of the technique to determine and compensate for zero and span drift.</p>

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Change in zero point over maintenance interval						
HCl			1.10			<3.0%
H ₂ O		0.80				<3.0%
Change in reference point over maintenance interval						
HCl			-1.70			<3.0%
H ₂ O			-1.40			<3.0%
Availability					99.5%	>95%
Reproducibility						
HCl			1.60			<3.3%
H ₂ O			1.60			<3.3%
Contamination check of in-situ systems					No effect	<2.0%

Note 1: The LaserGas II monitor has a maintenance interval of 6 months. The work detailed below has to be carried out at regular intervals, depending on local conditions:

- Regular monitoring of the light transmission rate and misalignment.
- Zero and Span checks.
- Checks of the optical windows for pollution and debris.

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Description

The LaserGas II monitor is an optical instrument based on transmitting infrared laser light from a transmitter unit on one side of the stack to a receiver unit on the diametrically opposite side of the stack.

The measuring technique is called infrared single-line spectroscopy and is based on measuring the absorption of light by the gas molecules present in the stack and the fact that most gases absorb light at certain wavelengths.

The absorption is a direct function of the gas concentration in the stack.

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 CSA Group Testing UK Ltd Certificates'.
2. The design of the product certified is held and maintained by TÜV Rheinland for certificate No. Sira MC120206.
3. If a certified product is found not to comply, CSA Group should be notified immediately at the address shown on this certificate.
4. The certification marks that can be applied to the product or used in publicity material are defined in 'Regulations Applicable to the Holders of CSA Group Testing UK Ltd Certificates'.
5. This document remains the property of CSA Group and shall be returned when requested by CSA Group.

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