

CERTIFICATE

of Product Conformity (QAL1)

Certificate No.: 0000038494_02

AMS designation: LaserGas II for HF

Manufacturer: NEO Monitors AS
Solheimveien 62A
1473 Lørenskog
Norway

Test Laboratory: TÜV Rheinland Energy GmbH

This is to certify that the AMS has been tested and certified
according to the standards

EN 15267-1: 2009, EN 15267-2: 2009, EN 15267-3: 2007
and EN 14181: 2004

Certification is awarded in respect of the conditions stated in this certificate
(this certificate contains 7 pages).



Suitability Tested
EN 15267
QAL1 Certified
Regular
Surveillance


www.tuv.com
ID 0000038494

Publication in the German Federal Gazette
(BAnz) of 01 April 2014

This certificate will expire on:
04 March 2023

German Federal Environment Agency
Dessau, 05 March 2018

TÜV Rheinland Energy GmbH
Cologne, 04 March 2018


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51105 Köln

Test institute accredited to EN ISO/IEC 17025:2005 by DAkkS (German Accreditation Body).
This accreditation is limited to the accreditation scope defined in the enclosure to the certificate D-PL-11120-02-00.

Test Report:	936/21212540/D dated 08 October 2013
Initial certification:	05 March 2013
Expiry date:	04 March 2023
Certificate:	Renewal (of previous certificate 0000038494_01 dated 29 April 2014 valid until 04 March 2018)
Publication:	BAnz AT 01.04.2014 B12, chapter I no. 2.2

Approved application

The tested AMS is suitable for use at combustion plants according to Directive 2010/75/EU, chapter III (13th BImSchV), at waste incineration plants according to Directive 2010/75/EU, chapter IV (17th BImSchV), the 27th BImSchV, the 30th BImSchV and TA Luft. The measured ranges have been selected so as to cater for as broad a field of application as possible.

The suitability of the AMS for this application was assessed on the basis of a laboratory test and a twelve-months field test at a waste incineration plant.

The AMS is approved for an ambient temperature range of -20 °C to +50 °C.

The notification of suitability of the AMS, performance testing and the uncertainty calculation have been effected on the basis of the regulations applicable at the time of testing. As changes in legal provisions are possible, any potential user should ensure that this AMS is suitable for monitoring the limit values relevant to the application.

Any potential user should ensure, in consultation with the manufacturer, that this AMS is suitable for the installation at which it will be installed.

Basis of the certification

This certification is based on:

- Test report 936/21212540/D dated 08 October 2013 issued by TÜV Rheinland Energie und Umwelt GmbH
- Suitability announced by the German Federal Environment Agency (UBA) as the relevant body
- The ongoing surveillance of the product and the manufacturing process

Publication in the German Federal Gazette: BAnz AT 01.04.2014 B12, chapter I no. 2.2,
UBA announcement dated 27 February 2014:

AMS designation:

LaserGas II for HF

Manufacturer:

NEO Monitors AS, Lørenskog, Norway

Field of application:

For plants requiring official approval and for plants according to the 27th BImSchV

Measuring ranges during performance testing:

Component	Certification range	Supplementary measuring ranges		Unit
HF	0–1*	0–1.5*	0–10*	mg/m ³

* referred to a measuring path of 1.0 m

Software version:

GM6.1f1

Restrictions:

None

Notes:

1. Wet test gases must be used when testing for HF.
2. The maintenance interval is six months.
3. The measuring path was 0.50 m during the laboratory and field test.
4. Regular drift tests in the maintenance interval can also be performed with the test cell and the surrogate gas CH₄.
5. Supplementary testing (extension of the maintenance interval) as regards Federal Environment Agency (UBA) notice of 12 February 2013 (BAnz AT 05.03.2013 B10, chapter I number 3.1).

Test Report:

TÜV Rheinland Energie und Umwelt GmbH, Cologne
Report no.: 936/21212540/D dated 8 October 2013

Publication in the German Federal Gazette BAnz AT 05.08.2014 B11, chapter V notification 11,
UBA announcement dated 17 July 2014:

11 Notification as regards Federal Environment Agency notices of 12 February 2013 (BAnz AT 05.03.2013 B10, chapter I number 3.1) and of 3 July 2013 (BAnz AT 23.07.2013 B4 chapter V 6th notification)

The current software version for the LaserGas II measuring system for HF manufactured by NEO Monitors AS, Lørenskog, Norway is now designated as GM 6.1f1-6.

Opinion stated by TÜV Rheinland Energie und Umwelt GmbH dated 2 April 2014

Publication in the German Federal Gazette BAnz AT 26.08.2015 B4, chapter V notification 19,
UBA announcement dated 22 July 2015:

19 Notification as regards Federal Environment Agency notices of 12 February 2013 (BAnz AT 05.03.2013 B10, chapter I number 3.1) and of 17 July 2014 (BAnz AT 05.08.2014 B11 chapter IV 11th notification)

The LaserGas II measuring system for HF manufactured by NEO Monitors AS may alternatively be equipped with a IG17X3000G1i detector manufactured by Laser Components.

Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 19 March 2015

Certified product

This certification applies to automated measurement systems conforming to the following description:

The LaserGas II is an optical instrument based on transmitting infrared laser light from a transmitter unit of one side of the stack straight to a receiver unit on the diametrically opposite side of the stack. The measuring technique is based on measuring the absorption of light by the gas molecules present in the stack.

The measuring principle is called infrared single-line absorption spectroscopy and is based on the fact that most gases absorb light at certain wavelengths. The absorption is a direct function of the gas concentration in the stack.

The tested system comprises the following parts:

- Transmitter with purge gas device and evaluation system
- Receiver unit with purge unit
- Data cable of 5 m length for connecting the sender and receiver unit
- Voltage supply
- Heated measuring path

The current software version is:

GM 6.1f1-6.

The current manual version is:

1.5 dated 12 November 2017

General remarks

This certificate is based upon the equipment tested. The manufacturer is responsible for ensuring that on-going production complies with the requirements of the EN 15267. The manufacturer is required to maintain an approved quality management system controlling the manufacturing process for the certified product. Both the product and the quality management systems shall be subject to regular surveillance.

If a product of the current production does not conform to the certified product, TÜV Rheinland Energy GmbH must be notified at the address given on page 1.

A certification mark with an ID-Number that is specific to the certified product is presented on page 1 of this certificate.

This document as well as the certification mark remains property of TÜV Rheinland Energy GmbH. Upon revocation of the publication the certificate loses its validity. After the expiration of the certificate and on request of TÜV Rheinland Energy GmbH this document shall be returned and the certificate mark must no longer be used.

The relevant version of this certificate and its expiration date are also accessible on the internet at qal1.de.

Certification of the LaserGas II measuring system for HF is based on the documents listed below and the regular, continuous surveillance of the manufacturer's quality management system:

Initial certification according to EN 15267

Certificate no. 0000038494: 22 March 2013
Expiry date of the certificate: 04 March 2018

Test report: 936/21212540/C dated 02 October 2012
TÜV Rheinland Energie und Umwelt GmbH, Cologne
Publication: BAnz AT 05.03.2013 B10, chapter I no. 3.1
UBA announcement dated 12 February 2013

Supplementary testing according to EN 15267

Certificate no. 0000038494_01: 29 April 2014
Expiry date of the certificate: 04 March 2018

Test report: 936/21212540/D dated 08 October 2013
TÜV Rheinland Energie und Umwelt GmbH, Cologne
Publication: BAnz AT 01.04.2014 B12, chapter I no. 2.2
UBA announcement dated 27 February 2014

Notifications in accordance with EN 15267

Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 27 March 2013
Publication: BAnz AT 23.07.2013 B4, chapter V notification 6
UBA announcement dated 03 July 2013
(new software version, alternative instrument version)

Opinion stated by TÜV Rheinland Energie und Umwelt GmbH dated 2 April 2014
Publication: BAnz AT 05.08.2014 B11, chapter V notification 11
UBA announcement dated 17 July 2014
(new software version)

Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 19 March 2015
Publication: BAnz AT 26.08.2015 B4, chapter V notification 19
UBA announcement dated 22 July 2015
(alternative detector)

Renewal of the certificate

Certificate no. 0000038494_02: 05 March 2018
Expiry date of the certificate: 04 March 2023

Calculation of overall uncertainty according to EN 14181 and EN 15267-3

Measuring system

Manufacturer	NEO Monitors AS
Name of measuring system	LaserGas II
Serial number of the candidates	6319 / 6320
Measuring principle	Single-line spectroscopy

Test report

Test laboratory	TÜV Rheinland
Date of report	2013-10-08

Measured component

Certification range	HF	0 - 2 mg/m ³	with 0.5 m path length
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Evaluation of the cross sensitivity (CS)

(system with largest CS)

Sum of positive CS at zero point	0.00 mg/m ³
Sum of negative CS at zero point	0.00 mg/m ³
Sum of positive CS at reference point	0.04 mg/m ³
Sum of negative CS at reference point	0.00 mg/m ³
Maximum sum of cross sensitivities	0.04 mg/m ³
Uncertainty of cross sensitivity	0.020 mg/m ³

Calculation of the combined standard uncertainty

Tested parameter

			u ²
Standard deviation from paired measurements under field conditions *	u _D	0.027 mg/m ³	0.001 (mg/m ³) ²
Lack of fit	u _{lof}	0.017 mg/m ³	0.000 (mg/m ³) ²
Zero drift from field test	u _{d,z}	0.008 mg/m ³	0.000 (mg/m ³) ²
Span drift from field test	u _{d,s}	0.019 mg/m ³	0.000 (mg/m ³) ²
Influence of ambient temperature at span	u _t	0.021 mg/m ³	0.000 (mg/m ³) ²
Influence of supply voltage	u _v	0.001 mg/m ³	0.000 (mg/m ³) ²
Cross sensitivity (interference)	u _i	0.020 mg/m ³	0.000 (mg/m ³) ²
Influence of sample pressure	u _p	0.000 mg/m ³	0.000 (mg/m ³) ²
Uncertainty of reference material at 70% of certification range	u _{rm}	0.016 mg/m ³	0.000 (mg/m ³) ²
Excursion of measurement beam	u _{mb}	-0.022 mg/m ³	0.000 (mg/m ³) ²

* The larger value is used :

"Repeatability standard deviation at span" or

"Standard deviation from paired measurements under field conditions"

$$u_c = \sqrt{\sum (u_{max,j})^2}$$

Combined standard uncertainty (u _c)		0.06 mg/m ³
Total expanded uncertainty	U = u _c * k = u _c * 1.96	0.11 mg/m ³

Relative total expanded uncertainty

Requirement of 2000/76/EC and 2001/80/EC	U in % of the ELV 1 mg/m ³	10.8
Requirement of EN 15267-3	U in % of the ELV 1 mg/m ³	40.0
	U in % of the ELV 1 mg/m ³	30.0