



DET NORSKE VERITAS

EC-TYPE EXAMINATION CERTIFICATE

[2] **EQUIPMENT OR PROTECTED SYSTEM INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES DIRECTIVE 94/9/EC**

[3] EC-Type Examination Certificate Number: **DNV-2006-OSL-ATEX-0381X** Rev. 1

[4] Equipment or Protective System: **LaserGas-II OP Monitor**

[5] Applicant: **Norsk Elektro Optikk A/S**
[6] Address: **Solheimveien 62a, 1471 Lørenskog, Norway**
[5] Manufacturer: **neo monitors as**
[6] Address: **Solheimveien 62a, 1471 Lørenskog, Norway**

[7] This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] DNV, notified body number 0575 in accordance with Article 9 of Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in confidential report no. : **2009-3045 and 2006-3428**

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0: 2006, EN 60079-2: 2007, EN 61241-0: 2006 and EN 61241-4: 2006

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protected system. If applicable, further requirements of this Directive apply to the manufacturer and supply of this equipment or protective system.

[12] The marking of the equipment or protective system shall include the following:



II 2 G

Ex px II T5



II 2 D

Ex pD 21 IP66 T64 °C

Høvik, 2009-01-29
for Det Norske Veritas Certification AS

Stein Kristensen
for Marianne Spæren
Certification Manager



Bjørn Spongsveen
Bjørn Spongsveen
Technical Reviewer

Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 300.000. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



[13]

Schedule

[14] EC-TYPE EXAMINATION CERTIFICATE No.: DNV-2006-OSL-ATEX-0381X

Rev. 1

Certificate History

| Revision | Description | Issue date |
|----------|--|------------|
| - | Original certificate | 2006-12-11 |
| - | Minor correction of writing error | 2007-01-26 |
| | Supplement 1 | 2008-01-16 |
| 1 | Updated according to recent standards. | 2009-01-29 |

[15] Description of Equipment or Protective System

The LaserGas-II OP Monitor is an optical instrument based on transmitting infrared laser light from a transmitter over an open path to a passive mirror and back into an incorporated receiver. The measurement principle is called infrared single-line absorption spectroscopy.

Type Identification

LaserGas-II OP

Extended temperature range

$-20\text{ }^{\circ}\text{C} \leq T_a \leq 55\text{ }^{\circ}\text{C}$

Electrical Data

115-230V AC or 18-36 VDC, 20W

Data for pressurization

| Alternative | 1 | 2 |
|----------------------|--------------|--------------|
| Volume of enclosure | 12 litre | 12 litre |
| Minimum purge flow | 11 l/min | 48 l/min |
| Minimum purging time | 3 min 40 sec | 1 min 15 sec |
| Minimum overpressure | 0,8 mbarg | 4 mbarg |
| Maximum overpressure | 20 mbarg | 20 mbarg |
| Maximum leakage rate | 2 l/min | 2 l/min |

Degrees of protection (IP Code)

IP66 according to EN 60259



[16] Report No.: 2009-3045 and 2006-3428

Project No.: PRJC-117600-2009-PRC-NOR and 44010264

Descriptive Documents

| Number | Title | Rev. | Date |
|-----------|---|------|------------|
| EX 14061B | List of approved drawings LGII open Path Monitor Ex-p | - | 2009-01-23 |

Routine tests

Routine tests shall be carried out as specified in clause 16.2 of EN 60079-2 on each manufactured unit.

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[17] Special Conditions for Safe Use

1. The monitoring device for the pressurization is not subject of this EC-Type Examination Certificate.
2. The monitoring device of the pressurization, consisting at least of the control, the pressure resp. flow monitoring and the protective gas distribution, has to be tested with regard to the function of the monitoring device according to the requirements of the section 7 of the EN 60079-2 concerning the function of the monitoring device.
3. The monitoring device of the pressurization has to be set at least with due observation of the data fixed in the EC-Type Examination Certificate for the disconnection of the LaserGas Monitor or connection of a warning signal in case of the fixed minimum excess pressure for the protective gas has fallen below,
 - examination of the leakage loss rate,
 - the minimum volumetric flow of protective gas during purging.
4. If not already embodied into the pressurization control system, a safety device limiting the pressure to the specified maximum overpressure of the equipment must be mounted.
5. The equipment contains a 3V lithium cell. Do not open equipment when an explosive atmosphere may be present.

[18] Essential Health and Safety Requirements

See part 9 of this certificate

END OF CERTIFICATE



If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 300.000. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.