

# CONFIRMATION

## of Product Conformity (QAL1)

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**Approved AMS:** OPASTOP GP4000H for dust

**Manufacturer:** FIVES PILLARD  
13, rue Raymond Teisseire  
13272 Marseille Cedex 8  
France

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**Test Institute:** TÜV Rheinland Energie und Umwelt GmbH

**This is to certify that the AMS has been tested  
and found to comply with:**

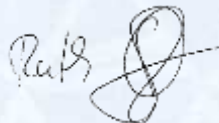
**EN 15267-1: 2009, EN 15267-2: 2009, EN 15267-3: 2007  
and EN 14181: 2004**

The approval of the measuring equipment subject to the above mentioned conditions  
was authorized by the German relevant body.

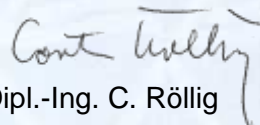
This confirmation is valid up to the official announcement in the Federal Gazette,  
but no longer than 6 months from the date of issue  
(see also the following pages).

**The confirmation is valid until: 14 July 2014**

TÜV Rheinland Energie und Umwelt GmbH  
Cologne, 15 January 2014



i. A. Dipl.-Ing. R. Steinhagen



i. A. Dipl.-Ing. C. Röllig

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Accreditation according to EN ISO/IEC 17025 and certified according to ISO 9001:2008.

**Confirmation:**  
15 January 2014



**Test report:** 936/21217455/A of 10 September 2013  
**Expiry date:** 14 July 2014

**Tested application**

The tested AMS is suitable for use at combustion plants according to Directive 2010/75/EU, chapter III and other plants requiring official approval. The tested ranges have been chosen with respect to the wide application range of the AMS.

The suitability of the AMS for this application was assessed on the basis of a laboratory test and a four-month field test at a municipal waste incinerator.

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

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 confirmation**

This certification is based on:

- test report 936/21217455/A of 10 September 2013 of TÜV Rheinland Energie und Umwelt GmbH
- the ongoing surveillance of the product and the manufacturing process
- expert testing and approved by an independent body

**Confirmation:**  
15 January 2014

**AMS designation:**

OPASTOP GP4000H for dust

**Manufacturer:**

FIVES PILLARD, Marseille, France

**Field of application:**

For measurements at plants requiring official approval (Directive 2010/75/EU, chapter III combustion plants)

**Measuring ranges during the performance test:**

Component	Certification range	Unit
dust	0 - 20	mg/m <sup>3</sup>

Component	Supplementary range		Unit
dust	0 - 15 <sup>1)</sup>	0 - 100 <sup>2)</sup>	SE

<sup>1)</sup> this corresponds to approx. 0 to 9 mg/m<sup>3</sup> dust

<sup>2)</sup> this corresponds to approx. 0 to 60 mg/m<sup>3</sup> dust

**Software version:**

V 1.3

**Restrictions:**

None

**Notes:**

1. The maintenance interval is two weeks.
2. The performance criterion as related to the correlation coefficient  $R^2$  of the calibration function according to EN 15267-3 was not fulfilled.

**Test report:**

TÜV Rheinland Energie und Umwelt GmbH, Cologne  
Report No.: 936/21217455/A of 10 September 2013

### **Tested product**

This confirmation applies to automated measurement systems confirming to the following description:

The OPASTOP GP4000H is a dust measuring system based on the principle of optical light scattering (backscattering). The measuring system consists of the following components:

- control box with LED light source, receiving unit, evaluation electronics, and control unit
- two fibre optics for transmitting the emitted and the received light
- sensor for fitting the fibre optics to the flue gas duct including a heating resistor, a heat detector, and a mounting flange
- instrument software and control blocks

Both fibre optics (available lengths: 1.20 m and 2.20 m) are fixated within the sensor. The sensor itself is mounted on a rectangular flange at the flue gas channel.

The light enters the measuring volume at an angle of 45° and is reflected in different directions by the particles. Part of the reflected light reaches the top of the receiving fibre. The intensity of the reflected light as compared to the intensity of the emitted light depends on the angle between sender and receiver as well as on form, colour, and size of the particles. For a given type of dust the quantity of light received is proportional to the quantity of dust.

In order to avoid the influence of interfering light, the light which is transmitted via the emitting fibre is modulated with a frequency of 1000 Hz by means of a generator in the electronic control box.

Data output is via two fixed measuring ranges which can be adjusted separately.

Due to the fibre optics the electronic control box can be mounted separate from the sensor. The control box contains the main board with the logic functions for control and supply. It has a microprocessor which assumes the following functions:

- evaluation of measurement results
- monitoring of emitted light and sensor temperature
- administration of instrument display and analogue outputs 4-20 mA
- administration of warning messages and errors

The measuring system is fitted with a purge air supply at the sensor. In order to avoid condensation, the purge air is heated. The purge air also serves the distribution of thermal heat within the sensor. The sensor can be adjusted to temperatures between 130 °C and 400 °C. The optical fibres are designed for a permanent maximum temperature of 250 °C.

For checking linearity and drift, 3 control or adjustment blocks as well as 1 zero point block per measuring range, which are provided by the manufacturer, are required. In the middle of the adjustment blocks there is hardened and pigmented glass. The thickness of the glasses is proportional to the optical density.

For the purpose of performance testing, the measuring system was operated with a damping time (sliding average) of 10 s.

The measuring system can automatically perform zero point checks every 24 h. Zero point checks can also be performed manually. Span point checks can only be performed manually by use of an adjustment block or, alternatively, by use of a calibration block.

In case of difficult measurement conditions (small channel diameter, reflections at the flue gas channel, etc.), zero point shifts may occur in measurements without dust load. In such cases, the measuring system allows for offset correction.

The measuring system has a means of contamination control. If deviation exceeds 10 %, the calculation of the correction factor may be triggered manually. The following measurements are corrected by this value. The correction factor can be switched on and off.