

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

T400 UV Photometric Ozone Analyser / 400E UV Photometric Ozone Analyser

manufactured by:

Teledyne API
9970 Carroll Canyon Road
San Diego
California
92131
USA

has been assessed by Sira Certification Service
and for the conditions stated on this certificate complies with:

**MCERTS Performance Standards for Continuous Ambient Air
Quality Monitoring Systems, Version 10 dated June 2016**

Certification range:

O₃ 0 to 500 µm/m³

Project number: 70047436/ 80060096
Certificate number: Sira MC050070/09
Initial certification: 27 October 2005
This certificate issued: 21 December 2020
Renewal date: 26 October 2025



Andrew Young
Environmental Team Manager

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service

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*The MCERTS certificate consists of this document in its entirety.
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To authenticate the validity of this certificate please visit www.csagroupuk.org/mcerts*

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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 technical guidance on monitoring, available at www.mcerts.net

All tests have been conducted in accordance with BS EN 14625. On the basis of these tests this certificate is valid when the instrument is used for urban air quality monitoring and similar applications.

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 Essen Report No 461775/01 dated 22/10/1992
Teledyne- API, Inc. Modification of Method EQOA-0992-087 submitted to US EPA in support for equivalency designation (Model API 400 E) dated June 2002
TÜV-Report: 936/21207124/A1 Cologne, 22.08.2007
TÜV-Report 936/21218734/D, Cologne, 11 October 2012
TÜV- Report Addendum II 936/21221556/D, Cologne, March 16, 2013
TÜV Letter Teledyne_Numaview_22012016

Product certified

The system tested comprised:

A 400E / T400 Ultraviolet (UV) Absorption Ozone Analyzer

This certificate applies to all instruments fitted with the following software:

- version 045140000 revision D1 onwards (serial number 849 onwards) for the 400E.
- version 045140001 build 46 onwards and/or NUMAview™ software for the T400 (serial number 51 onwards).

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Certified performance

The instrument was evaluated for use under the following conditions:
Ambient Temperature Range: 5 to 40°C

Performance values are expressed as a percentage of the certification range, except for availability and analysis function.

Test	Results expressed as % of measured value				Other results	MCERTS* specification
	<0.5	<1	<2	<4		
Repeatability at zero					0.7 nmol/mol	≤1nmol/mol
Repeatability at hourly limit value					1.1 nmol/mol	≤3 nmol/mol
Residual lack of fit at zero					0.5 nmol/mol	≤5 nmol/mol
Lack of fit (largest residual from the linear regression line)			-1.4			≤4%
Sensitivity coefficient to sample gas pressure					0.38 nmol/mol/kPa	≤2 nmol/mol/kPa
Sensitivity coefficient to sample gas temperature					0.03 nmol/mol/K	≤1 nmol/mol/K
Sensitivity coefficient to surrounding air temperature					0.06 nmol/mol/K	≤1nmol/mol/K
Sensitivity coefficient to electrical supply voltage					0.02 nmol/mol/V	≤0.3 nmol/mol/V
Interference by H ₂ O (at concentration of 19 nmol/mol)					-2.0 nmol/mol	≤10 nmol/mol
Interference by m-xylene (at concentration of 0.5 μmol/mol)					1.7 nmol/mol	≤5 nmol/mol

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Test	Results expressed as % of measured value				Other results	MCERTS* specification
	<0.5	<1	<2	<4		
Interference by toluene (at concentration of 0.5 µmol/mol)					1.5 nmol/mol	≤5 nmol/mol
Averaging effect					3.5%	≤7%
Short term zero drift (over 12h)					1.5 nmol/mol	≤2 nmol/mol
Short term span drift (over 12h)					-1.2 nmol/mol	≤6 nmol/mol
Response time (rise)					67 s	≤180 s
Response time (fall)					63 s	≤180 s
Difference between rise and fall time					8 s	≤10 s
Reproducibility under field conditions <small>Note 1</small>					2.69%	≤5% averaged over three month period
Long term zero drift (over 3 months) <small>Note 1</small>					0.9 nmol/mol	≤5 nmol/mol
Long term span drift (over 3 months) <small>Note 1</small>				3.7		≤5% of the max of certification range
Residence time in the analyzer					1.1 s	≤3 s
Period of unattended operation <small>Note 1</small>					4 weeks	3 months not less than 2 weeks
Availability (data capture) <small>Note 1</small>					96.5%	>90%
Combined performance characteristic					9.01%	≤15%

Note 1: Field Test: The 400 E analyser was assessed on the basis of a three month field trial on an urban field test site.

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Description

The instrument is a microprocessor-controlled analyser that uses a system based on the Beer-Lambert law for measuring low ranges of ozone in ambient air. A 254 nm UV light signal is passed through a sample cell where it is absorbed in proportion to the amount of ozone present. A switching valve alternates measurement between the sample stream and a sample that has been scrubbed of ozone, resulting in a true, stable ozone measurement. The software provides real time indication of a number of operational parameters and provides automatic warnings if diagnostic limits are exceeded. Built-in acquisition capability allows the logging of up to one million records including averaged or instantaneous concentration values, calibration data and operating parameters such as pressure and flow rate.

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'.
2. The design of the product certified is held and maintained by TÜV Rheinland for certificate No. Sira MC050070/09
3. If a certified product is found not to comply, Sira 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 Sira certificates'.
5. This document remains the property of Sira and shall be returned if requested by Sira.

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