

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

DECS® - Isokinetic Dioxin Sampling System

Manufactured by:

TCR Tecora® SRL

Via delle Primule 16
20815 Cogliate (MB)
Italy

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

**MCERTS Performance standards and test procedures for automatic isokinetic samplers,
EA, version 3, dated September 2016 & EN15267-1:2009, EN15267-2:2009 (QAL 1)**

Certification range:

Isokinetic sampling velocity: 2 - 30m/s

Project No.: 80199827
Certificate No: CSA MC240431/00
Initial Certification: 12 April 2024
This Certificate issued: 12 April 2024
Renewal Date: 11 April 2029



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Environmental Team Manager

MCERTS is operated on behalf of the Environment Agency by

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Approved Site Application

Any potential user should make sure, 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 guidance available at www.mcerts.net

On the basis of this evaluation the isokinetic sampling system is considered suitable for continuous sampling of dioxins, furans and other persistent organic pollutants (POPs) on any process where the stack conditions are within the performance of the certification range of this instrument.

The field test was carried out over a period of four months in the waste gas of a municipal waste incinerator.

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:

TÜV Rheinland Energy GmbH, Test report no. EuL/21250093/D, Cologne, 5 April 2024

Product Certified

The DECS[®] Isokinetic sampling system consists of the following parts:

- The sampling unit, with sampling probe also houses the heated titanium filter cartridge (quartz microfibre sleeves with a diameter of 43mm and length of 123mm), the cooler and the glass cartridge (with XAD-2 resin)
- Control unit – the measuring cabinet (with sample gas conditioning) connected to the sampling unit via a RS485 connection. The unit contains an LCD display with controls.

This certificate applies to all instruments fitted with software version 4.0.1, and for the control unit serial number of CU2110001, onwards and for the sampling unit serial number SU211001, onwards.

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Certified Performance

Results are expressed as error % of certification range, unless otherwise stated.

Test (<i>Laboratory</i>)	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Velocity range					2 - 30 ms ⁻¹	2-20 ms ⁻¹
Accuracy of isokinetic sampling rate response to changes in flue gas velocity					-1.60	+/-5%
Accuracy of determination of volume of gas sampled					-1.49	+/-2%
Linearity of isokinetic sampling rate 2 – 30 m/s		-0.67				+/-5%
Response time, T ₉₀ (seconds) 2 – 30 m/s					44 s	<100 s
Flow repeatability under laboratory conditions	0.20					+/-5%
Minimum operational velocity					2.0 m/s	2 m/s
Drift (short term)	-0.2					2%

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Test (<i>Field</i>)	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Accuracy of the determination of volume of gas sampled calculated as an average of ten runs performed during the first of the last month of testing					-0.93	+/-5%
Flow reproducibility under field conditions calculated from ten independent measurement results at one fixed location within the duct					-3.50	+/-5%
Availability over three months continuous use					99.5%	>95%

Note 1: The integrated velocity measurement cannot be performed in waste gases saturated with water vapour.

Note 2: The maintenance interval for the waste gas velocity is 4 weeks.

Maintenance work:

- Regular visual inspection; control unit display signal, cabling to the measuring probes, temperature monitoring.
- Replacement of glass and titanium cartridges including analysis.
- Check on the zero and span point drift for the waste gas velocity following 4 weeks with a velocity specified by means of a simulated pressure signal.
- The manufacturer's instructions should be adhered to.

Functional check (recommended before calibration):

- Visual inspection of the display signal on the control unit and the cabling to the measuring probes.
- Check on the linearity of the waste gas velocity by simulating a pressure signal at a specified velocity.
- Determination of the lag and response time.
- Before to each sampling run - i) clean and rinse the probe and cooler with acetone, toluene and distilled water, ii) reset the total volume and delete measurement logs and iii) record the data.
- After to each sampling run - i) replace the glass and titanium cartridges and dispatch for analysis and ii) record the data.
- Check data transmission to the evaluation system (analogue and digital signals).

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Description

DECS® is an emission sampling system based on filter/condenser method designed to monitor dioxins/furans (PCCDs/PCDFs), dioxin like PCBs and other POPs emissions, including polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs), in the flue gasses of industrial and domestic waste incinerators and combustion plants.

DECS® is a long-term sampling system, the device is composed by two main units, a sample collection unit (Sampling Unit SU), permanently installed on the chimney and a Control Unit CU, placed at a variable distance according to the plant accessibility and characteristics.

The sample gas is sucked through the nozzle, probe, and filter ($t < 125$ °C) and then through the condenser and the sorbent trap. The trap is working on the wet phase, following the scheme suggested in EN 1948-1:2006, B.4, variant with solid adsorbent upstream of the condensate flask. The control unit is placed on a secure area and it communicates with the sample collection unit by using a RS485 port.

The filter is spiked by distributing portions of the sampling standard at various places of the filter. Additionally, the styrene-divinylbenzene resin copolymer adsorbent may be spiked too/or instead of.

A sampling routine is programmed by the operator on the DECS® user interface by the user. Parameters to set are the requested sampling time and the filter and styrene-divinylbenzene resin copolymer cartridge in order to ensure traceability of the sample. Those values are stored in the report.

Isokinetic flow rate is automatically controlled by a feedback regulation between stack measured velocity (Pitot tube) and nozzle velocity. The flow rate is checked by the mass flow meter and modified to fit the condition.

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. CSA MC240431.
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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