

Stationary source emissions — Determination of the mass concentration of total gaseous organic carbon at low concentrations in flue gases — Continuous flame ionization detector method

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- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
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Summary of pages

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English version

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Emissions de sources fixes — Détermination de la concentration massique en carbone organique total à de faibles concentrations dans les effluents gazeux — Méthode du détecteur continu à ionisation de flamme

Emissionen aus stationären Quellen — Bestimmung der Massenkonzentration des gesamten gasförmigen organisch gebundenen Kohlenstoffs in geringen Konzentrationen in Abgasen — Kontinuierliches Verfahren unter Verwendung eines Flammenionisationsdetektors

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 264, Air quality, the Secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 1999, and conflicting national standards shall be withdrawn at the latest by December 1999.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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1 Scope

This European Standard specifies a set of minimum performance requirements for an instrument using flame ionization detection, together with procedures for its calibration and operation, for the measurement of the mass concentration of total gaseous organic carbon (TOC) in stationary source combustion emissions.

This European Standard is suitable for the measurement of low level gaseous or vapour phase TOC emissions such as those from municipal waste incinerators and hazardous waste incinerators.

NOTE See Council Directive 89/369/EEC which is under revision and Council Directive 94/67/EC.

This standard is not recommended for performing measurements on solvent using processes. Minimum operational requirements for long term emissions monitoring are suggested in annex A. It is likely that these will be modified by subsequent European Standards. The results obtained using this standard are expressed in milligrams per cubic metre as total carbon (mg/m^3). This standard is suitable for use in the range $0 \text{ mg}/\text{m}^3$ to $20 \text{ mg}/\text{m}^3$.

The method specified in this European Standard can be used as a reference method or, with suitable minimum operational requirements, for continuous monitoring. It can also be used for the calibration of automated measuring systems. An indication of the uncertainty of the measurement is shown in annex B.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

ISO 6879:1995, *Air quality — Performance characteristics and related concepts for air quality measuring methods*.

ISO 7504:1984, *Gas analysis — Vocabulary*.

3 Terms and definitions

For the purposes of this standard, the following definitions apply.

3.1

combustion air

air supply used for the combustion of fuel gas in an instrument using flame ionization detection

3.2

complementary gas

most abundant component, usually nitrogen, in a gas mixture

3.3

control gas mixture

gas mixture used to check the minimum performance requirements of the FID

3.4

detection threshold

minimum concentration of a substance which produces an observable response, as detailed in annex C and referred to in ISO 7504:1984

3.5

flame ionization detector (FID)

instrument using flame ionization detection

3.6

flue gas

product from a combustion or incineration process containing gaseous and particulate components

3.7

fuel gas

gas of known composition used to maintain the flame of the FID

3.8

mass concentration of gaseous total organic carbon

quotient of the mass of total organic carbon to the volume of the dry gas under specified reference conditions of temperature and pressure, normally expressed in milligrams per cubic metre as total carbon

3.9

range

set of values for a measure and for which the error of a measuring instrument is intended to lie within specified limits.

3.10

response factor

dimensionless quotient of the response of the FID with any carbon based compound or compounds to its response to propane

3.11

response time

time which elapses between the moment when a change is produced and the moment when the instrument response reaches a value of 90 % of the final change in instrument response as a consequence of a stepwise change in the total organic carbon concentration

3.12

span gas

gas used to adjust and check a specific point on a calibration curve

3.13

total organic carbon (TOC)

measure of the amount of gaseous or vapour phase organic carbon which, within the context of this standard, is measured by the FID and expressed as total organic carbon in milligrams per cubic metre