



BSI Standards Publication

**Stationary source emissions  
— Determination of the mass  
concentration of individual  
gaseous organic compounds  
— Sorptive sampling method  
followed by solvent extraction  
or thermal desorption**

**National foreword**

This Published Document is the UK implementation of CEN/TS 13649:2014. It supersedes BS EN 13649:2002 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EH/2/1, Stationary source emission.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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English Version

Stationary source emissions - Determination of the mass concentration of individual gaseous organic compounds - Sorptive sampling method followed by solvent extraction or thermal desorption

Emissions de sources fixes - Détermination de la concentration massique en composés organiques gazeux individuels - Échantillonnage par adsorption et extraction par solvant ou thermodésorption

Emissionen aus stationären Quellen - Bestimmung der Massenkonzentration von gasförmigen organischen Einzelverbindungen - Sorptive Probenahme und Lösemittel-Extraktion oder thermische Desorption

This Technical Specification (CEN/TS) was approved by CEN on 25 August 2014 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years, the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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## Foreword

This document (CEN/TS 13649:2014) has been prepared by Technical Committee CEN/TC 264 "Air quality", the secretariat of which is held by DIN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13649:2001.

Significant technical changes between this Technical Specification and the previous edition of EN 13649 are:

- a) the status of the document has been changed from European Standard (EN) to Technical Specification (TS);
- b) the scope has been clarified regarding the use of the TS and its applicability;
- c) a decision tree for the determination of the sampling procedure has been included;
- d) the sampling strategy has been aligned with EN 15259;
- e) the thermal desorption technique has been added;
- f) comprehensive information on the validation of monitoring methods for speciated organic substances in stack gas is given.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## 1 Scope

This Technical Specification specifies procedures for the sampling, preparation and analysis of individual volatile organic compounds (VOCs) in waste gas, such as those arising from solvent using processes. Sampling occurs by adsorption on sorbents, preparation by solvent extraction or thermodesorption and analysis by gas chromatography.

Examples of individual VOC are given in relevant industry sector BAT Reference documents (BREFs).

The results obtained are expressed as the mass concentration ( $\text{mg}/\text{m}^3$ ) of the individual gaseous organic compounds. This document is suitable for measuring individual VOCs whose ranges vary depending on compound and test method, refer to Annex B and C.

This Technical Specification may be used to meet the monitoring requirements of the Industrial Emission Directive (IED) and associated supporting documents.

This Technical Specification is not suitable for measuring total organic carbon (TOC). For the measurement of the mass concentration of total organic carbon then EN 12619 [3] is applicable.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 15259, *Air quality - Measurement of stationary source emissions - Requirements for measurement sections and sites and for the measurement objective, plan and report*

EN ISO 14956, *Air quality - Evaluation of the suitability of a measurement procedure by comparison with a required measurement uncertainty (ISO 14956)*

EN ISO 16017-1, *Indoor, ambient and workplace air - Sampling and analysis of volatile organic compounds by sorbent tube/thermal desorption/capillary gas chromatography - Part 1: Pumped sampling (ISO 16017-1)*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

### 3.1

#### **desorption efficiency**

ratio of the mass of the recovered organic material to the mass of organic material collected by the adsorbent expressed as a percentage

### 3.2

#### **sampling tube for solvent extraction**

glass tube filled with activated carbon as the adsorbent

#### **sampling tubes for thermal desorption**

stainless steel, inert-coated steel or glass tube-form samplers supplied capped and packed with one or more conditioned, thermal desorption compatible sorbents