Irish Standard
I.S. EN 17628:2022

Fugitive and diffuse emissions of common concern to industry sectors - Standard method to determine diffuse emissions of volatile organic compounds into the atmosphere

I.S. EN 17628:2022

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

I.S. EN 17628:2022 is the adopted Irish version of the European Document EN 17628:2022, Fugitive and diffuse emissions of common concern to industry sectors - Standard method to determine diffuse emissions of volatile organic compounds into the atmosphere

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 17628

April 2022

ICS 13.040.40

English Version

Fugitive and diffuse emissions of common concern to industry sectors - Standard method to determine diffuse emissions of volatile organic compounds into the atmosphere

Émissions fugitives et diffuses concernant les secteurs industriels - Méthode normalisée pour la détermination des émissions diffuses de composés organiques volatils dans l'atmosphère

Fugitive und diffuse Emissionen von allgemeinem Interesse für Industriebereiche - Verfahren zur Bestimmung diffuser Emissionen flüchtiger organischer Verbindungen in die Atmosphäre

This European Standard was approved by CEN on 13 March 2022.

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European foreword

This document (EN 17628:2022) 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of an identical text or by endorsement, at the latest by October 2022, and conflicting national standards shall be withdrawn at the latest by October 2022.

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

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Introduction

0.1 Background

This document has been developed to provide a framework for the selection and use of monitoring methods to determine (detect, identify and/or quantify) the emission to the air of volatile organic compounds (VOC) from diffuse sources, in particular due to the storage, transfer and handling (loading/unloading) of such compounds, within certain industrial sectors. It has primarily been developed to meet the needs of the European Best Available Technique Reference (BREF) document for the refining of mineral oil and gas [1] including the Commission implementing decision [2] establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU [3] on industrial emissions, for the refining of mineral oil and gas.

Emissions of VOCs from anthropogenic, biogenic and other natural sources contribute to the formation of ozone and other pollutants in the atmosphere which are detrimental to human health and damaging to the environment. Better determination of the anthropogenic contribution can help reduce these impacts. A wide range of human activities can give rise to emissions (e.g. industrial processes, transport, the storage and handling of fuels and chemicals, end use of VOC containing products, etc.). Emission sources can be complex and diffuse sources are difficult to determine accurately. Their determination has hitherto required the use of specific measurement and estimation methods not subject to standardization. By setting out appropriate standardization criteria and demonstrating their use with certain techniques, the determination of diffuse VOC should be improved, assisting the management of emissions and consequential benefits.

0.2 European context

National reduction targets for VOC emissions to air in European countries are regulated through the Gothenburg Protocol [4] of the UN-ECE Convention on Long-range Trans-boundary Air Pollution (CLRTAP) and, additionally, for the EU Member States and the EU as a whole by the National Emission Ceilings Directive (2016/2284/EU [5]). Annual reporting of emissions is required under both instruments.

National emissions are the sum of sectoral emissions. Within the EU sectoral emissions are regulated to enable the national commitment to be met. For the largest industrial sectors, the principle instrument is the Industrial Emissions Directive (Directive 2010/75/EU [3]). The Industrial Emissions Directive (IED) sets minimum emission standards for certain pollutants in key sectors but, more importantly, sets out formal guidance to permitting authorities on the emissions, to both air and water and expressed as concentrations or loads that might be achieved through the application of Best Available Technology (BAT). Conclusions on BAT (BATC) are published in the Journal of the European Union and have legal status. The BATC are derived through a formal process (the Sevilla Process) of data collection and appraisal recorded in Best Available Techniques Reference documents (BREFs). BREFs provide context and guidance for the interpretation of the BATC. The IED sets out a requirement to review, and if necessary, revise, each sectoral BREF on an 8-year cycle.

This document supports BATCs that require diffuse VOC emissions to be assessed and reported. These are, at the time of writing, set out in:

— Mineral Oil and Gas Refineries [2] (BAT 6);

— Common Waste Water and Waste Gas in the Chemical Sector [6] (BAT 5);

— Common Waste Gas Management and Treatment Systems in the Chemical Sector (BAT 22) [7].

General information on Monitoring for Diffuse Emissions can be found in the JRC Reference Report on Monitoring of Emissions to Air and Water from IED Installations (EUR 29261 EN) [8].

1 Scope

This document specifies the framework for determining emissions to the atmosphere of Volatile Organic Compounds (VOCs). It specifies a system of methods to detect and/or identify and/or quantify VOC emissions from industrial sources. These methods include Optical Gas Imaging (OGI), Differential Absorption Lidar (DIAL), Solar Occultation Flux (SOF), Tracer Correlation (TC), and Reverse Dispersion Modelling (RDM). It specifies the methodologies for carrying out all the above, and also the performance requirements and capabilities of the direct monitoring methods, the requirements for the results and their measurement uncertainties.

This document specifically addresses, but is not restricted to, the petrochemicals, oil refining, and chemical industries receiving, processing, storing, and/or exporting of VOCs, and includes the emissions of VOCs from the natural gas processing/conditioning industry and the storage of natural gas and similar fuels. The methods specified in this document have been validated at onshore facilities.

This document is applicable to diffuse VOC emissions to atmosphere but not to the emissions of VOCs into water and into solid materials such as soils. It is complementary to EN 15446 [9], the standardized method for the detection, localization of sources (individual leaks from equipment and piping), and quantification of fugitive VOC emissions within the scope of a Leak Detection and Repair Programme (LDAR).

This document has been validated for non-methane VOCs, but the methodology is in principle applicable to methane and other gases.

This document specifies methods to determine (detect, identify and/or quantify) VOC emissions during the periods of monitoring. It does not address the extrapolation of emissions to time periods beyond the monitoring period.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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 60825-1:2014, *Safety of laser products – Part 1: Equipment classification and requirements*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp/ui

3.1
detection
recognition of the presence of an emission source in a certain area

3.2
localisation
determination with a certain degree of precision of the position of an emission