International Standard

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Stationary source emissions — Determination of low range mass concentration of dust — Manual gravimetric method

Émissions de sources fixes — Détermination de faibles concentrations en masse de poussières — Méthode gravimétrique manuelle

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by CEN (as EN 13284-1:2017) and drafted in accordance with its editorial rules. It was assigned to Technical Committee ISO/TC 146, *Air quality*, Subcommittee SC 1, *Stationary source emissions*, and adopted under the “fast-track procedure”.

This second edition cancels and replaces the first edition (ISO 12141:2002), which has been technically revised.

The main changes are as follows:

— all technical changes have been listed in Annex I;

— "this European Standard" has been changed to "this document";

— "section" has been changed to "Clause" or "subclause".

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The measurement method specified in this document has been developed in close liaison and cooperation between ISO/TC 146/SC 1 and CEN/TC 264, resulting in the preparation of the first editions of the International Standard ISO 12141:2002 and the European Standard EN 13284-1:2001.

In the meantime, CEN/TC 264 has revised EN 13284-1:2001 in order to adapt the content to the state of the art. The basic concept of the measurement method has not been changed. Against this background and to ensure comparability of measurement results at international level, ISO/TC 146/SC 1 has decided to adopt EN 13284-1:2017 without technical changes. However, some editorial adjustments have been made to take account of the international application of this document. For example, references to EN 15259:2007 in EN 13284-1:2017 have been replaced in this document by references to the technically identical ISO 15259:2023.

To meet the specifications of this document, a certain level of accuracy for weighing the particle sample is needed. At low dust concentrations, this level of accuracy can be achieved by:

a) exercising extreme care in weighing, as per procedures of this document;

b) extending the sampling time at conventional sampling rates; or

c) sampling at higher rates for conventional sampling times (high-volume sampling).

High-volume sampling is not part of this document since it was not part of the validation of the measurement method.

The measurement method specified in this document can be used for the calibration of automated measuring systems (AMS) (see ISO 10155). If the waste gas contains unstable, reactive or semivolatile substances, the measurement depends on the filtration temperature, and in-stack methods can be more applicable than out-stack methods for the calibration of AMS.

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Stationary source emissions — Determination of low range mass concentration of dust — Manual gravimetric method

1 Scope

This document specifies the standard reference method (SRM) for the measurement of low dust concentration in ducted gaseous streams in the concentrations below 50 mg/m^3 at standard conditions.

This document is primarily developed and validated for gaseous streams emitted by waste incinerators. More generally, it can be applied to gases emitted from other stationary sources, and to higher concentrations.

If the gases contain unstable, reactive or semi-volatile substances, the measurement depends on the sampling and filter treatment conditions.

This method has been validated in field tests with special emphasis to dust concentrations around 5 mg/m^3. The results of the field tests are presented in Annex A.

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.

ISO 15259:2023, *Air quality — Measurement of stationary source emissions — Requirements for measurement sections and sites and for the measurement objective, plan and report*

ISO 16911-1, *Stationary source emissions — Manual and automatic determination of velocity and volume flow rate in ducts — Part 1: Manual reference method*

3 Terms and definitions

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

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

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

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

3.1
dust
particles, of any shape, structure or density, dispersed in the gas phase at the sampling point conditions which may be collected by filtration under specified conditions after representative sampling of the gas to be analysed, and which remain upstream of the filter and on the filter after drying under specified conditions

3.2
filtration temperature
temperature of the sampled gas immediately downstream of the filter

3.3
in-stack filtration
filtration in the duct with the filter in its filter housing placed immediately downstream of the sampling nozzle

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