SLOVENSKI STANDARD
oSIST prEN 17389:2019

01-junij-2019

Emisije nepremičnih virov - Postopki zagotavljanja kakovosti in kontrole kakovosti za avtomatsko opremo za nadzor prahu

Stationary source emissions - Quality assurance and quality control procedures for automated dust arrestment plant monitors

Emissionen aus stationären Quellen - Qualitätssicherung und Qualitätskontrolle für automatische Geräte zur überwachung von Staubabscheidern

Ta slovenski standard je istoveten z: **prEN 17389**

ICS:

13.040.40	Emisije nepremičnih virov	Stationary source emissions

oSIST prEN 17389:2019 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 17389

May 2019

ICS

English Version

Stationary source emissions - Quality assurance and quality control procedures for automated dust arrestment plant monitors

Emissionen aus stationären Quellen - Qualitätssicherung und Qualitätslenkung für automatische Geräte zur ÿberwachung von Staubabscheidern

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 264.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

Page

European foreword

This document (prEN 17389:2019) has been prepared by Technical Committee CEN/TC 264 “Air quality”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

Introduction

The type of monitoring of dust emissions at industrial plants depends on the monitoring objectives. In general, three monitoring objectives can be distinguished:

— Monitoring of plants with emission limit values (ELV), which require quantitative measurements with permanently installed automated measuring systems (AMS) providing measured values with a maximum permissible measurement uncertainty specified by legislation, in order to determine exceedances of the ELV and number of exceedances for specified time periods forms the first level of monitoring. Large combustion plants and waste incineration plants are examples of plants under this monitoring objective. The measurements are performed with AMS, which are performance tested and certified according to EN 15267-1, EN 15267-2 and EN 15267-3. The quality assurance measures for these AMS are laid down in EN 14181 and EN 13284-2.

— Monitoring of plants with ELV, which require qualitative measurements in order to demonstrate that the dust emissions are below the specified ELV and the dust arrestment plant works properly form the second level of monitoring. Foundries are typical examples of plants under this monitoring objective. The measurements are performed with filter dust monitors, which can be calibrated in mass concentration units (e.g. mg/m^3) but have a larger measurement uncertainty than quantitative measurements. Filter dust monitors are performance tested and certified according to EN 15859. The quality assurance measures for these instruments are laid down in this document.

— Monitoring of dust arrestment plants with indicative measurements in order to indicate a possible problem with the dust arrestment plant by monitoring a change in the emissions level or a change in the magnitude of the dust pulses created by the cleaning process forms the third level of monitoring. The measurements are performed with filter leakage monitors which are performance tested and certified according to EN 15859. The quality assurance measures for these instruments are laid down in this document.

This document provides supporting information on the quality assurance and quality control procedures related to automated dust arrestment plant monitors, which cover both *filter dust monitors* and *filter leakage monitors*.

For the purposes of this document, the term *instrument* is used to encompass both types of automated dust arrestment plant monitors. The terms *filter dust monitor* and *filter leakage monitor* are only used where it is necessary to distinguish between the two types.

This document includes provisions for the selection, installation, configuration, ongoing quality assurance and annual surveillance test of automated dust arrestment plant monitors.

This document supports requirements for filter leakage monitors and filter dust monitors specified e.g. in national legislation or in a number of industrial sector BREF Documents.

1 Scope

This document specifies the quality assurance and quality control procedures related to automated dust arrestment plant monitors.

This document applies to two types of instruments commonly used for dust arrestment plant control purposes:

— filter dust monitors that are configured in mass concentration units (e.g. mg/m3) and is used for dust arrestment control purposes;

— filter leakage monitors that indicate a change in the emission levels or a change in the magnitude of the dust pulses created by the cleaning process of the dust arrestment plant.

This document applies to instruments certified according to the requirements of EN 15859.

This document provides information on the configuration, ongoing quality assurance (with internal zero and reference checks) and annual surveillance tests of instruments. This ensures that the instrument is providing information to demonstrate that dust arrestment plant is working correctly and controlling dust pollution to the required levels.

The configuration of the alarm levels of filter dust monitors is performed by parallel measurements with the standard reference method in EN 13284-1.

This document specifies the set-up of filter leakage monitors used to monitor a change in response caused by deterioration in the operation of the dust arrestment plant.

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 13284-1, *Stationary source emissions - Determination of low range mass concentration of dust - Part 1: Manual gravimetric method*

EN 15259:2007, *Air quality - Measurement of stationary source emissions - Requirements for measurement sections and sites and for the measurement objective, plan and report*

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 http://www.electropedia.org/

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

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

Note 1 to entry: Adapted from EN 13284-1:2017, 3.1

3.2
dust arrestment plant monitor
filter dust monitor or filter leakage monitor and additional devices for obtaining a result

Note 1 to entry: Apart from the actual measuring device (the analyser), an instrument may include further components, like purge air blowers or external displays.

[SOURCE: EN 15859:2010, 3.2]

3.3
filter dust monitor
instrument, which can be calibrated in mass concentration units and used for dust arrestment control purposes, but does not fulfil the uncertainty demands according to EN 14181, or does not have reference materials for linearity test and QAL3 procedure according to EN 14181

Note 1 to entry: A mass concentration unit is e.g. mg/m^3.

[SOURCE: EN 15859:2010, 3.4]

3.4
filter leakage monitor
instrument, which indicates a possible problem with the dust arrestment plant

Note 1 to entry: These instruments may either monitor a rapid change in the emissions level or a change in the magnitude of the dust pulses created by the cleaning process.

[SOURCE: EN 15859:2010, 3.5]

3.5
reference method
RM
measurement method taken as a reference by convention, which gives the accepted reference value of the measurand

[SOURCE: EN 15259:2007, 2.8]

Note 1 to entry: A reference method is fully described.

Note 2 to entry: A reference method can be a manual or an automated method.

Note 3 to entry: Alternative methods can be used if equivalence to the reference method has been demonstrated according to EN 14793.

3.6
standard reference method
SRM
reference method prescribed by European or National standard

Note 1 to entry: Standard reference methods are used e.g. to calibrate and validate instrument and for periodic measurements to check compliance with limit values.

[SOURCE: EN 15259:2007, 2.9]

3.7
measurement
set of operations having the object of determining a value of a quantity

[SOURCE: EN 15259:2007, 3.1]

3.8
measurand
particular quantity subject to measurement

Note 1 to entry: The measurand is a quantifiable property of the waste gas under test, for example mass concentration of a measured component, temperature, velocity, mass flow, oxygen content and water vapour content.

[SOURCE: EN 15259:2007, 3.5]

3.9
measured component
constituent of the waste gas for which a defined measurand is to be determined by measurement

[SOURCE: EN 15259:2007, 2.6]

Note 1 to entry: Measured component is also called determinand.

3.10
calibration
determination of a calibration function with (time) limited validity applicable to an instrument at a specific measurement site

Note 1 to entry: Adapted from EN 15267-3:2007, 3.9.

[SOURCE: EN 15859:2010, 3.13]

3.11
calibration function
relationship between the values of the SRM and the instrument with the assumption of a constant residual standard deviation

Note 1 to entry: Adapted from EN 15267-3:2007, 3.10.

Note 2 to entry: The calibration function describes the statistical relationship between the starting variable (measured signal) of the measuring system and the associated result of measurement (measured value) simultaneously determined at the same point of measurement using a SRM.

[SOURCE: EN 15859:2010, 3.14]

3.12
automatic internal zero point
output of the instrument in response to an internally generated function, intended to represent absence of the measured component

[SOURCE: EN 15859:2010, 3.15]

3.13
automatic internal reference point
output of the instrument in response to an internally generated function, intended to represent a defined amount of the measured component

[SOURCE: EN 15859:2010, 3.16]

3.14
measured signal
output from an instrument in analogue or digital form which is converted into the measured value with the aid of the calibration function

Note 1 to entry: Adapted from EN 15267-3:2007, 3.15.

[SOURCE: EN 15859:2010, 3.17]

3.15
output
reading, or digital or analogue electrical signal generated by an instrument in response to a measured object

Note 1 to entry: Adapted from EN 15267-3:2007, 3.16.

[SOURCE: EN 15859:2010, 3.18]

3.16
performance characteristic
quantity assigned to an instrument in order to define its performance

Note 1 to entry: Adapted from EN 15267-3:2007, 3.19.

Note 2 to entry: A performance characteristic is described by values, tolerances and ranges.

[SOURCE: EN 15859:2010, 3.21]

3.17
averaging time
period of time over which an arithmetic or time-weighted average of concentrations is calculated

[SOURCE: EN 15267-3:2007, 3.22]

3.18
drift
monotonic change of the calibration function over a stated period of unattended operation, which results in a change of the measured value

[SOURCE: EN 15267-3:2007, 3.26]

3.19
maintenance interval
maximum admissible interval of time for which the performance characteristics remain within a pre-defined range without external servicing, e.g. refill, calibration, adjustment

Note 1 to entry: This is also known as the period of unattended operation.

[SOURCE: EN 15267-3:2007, 3.29]

3.20
response time
t_{90}
time interval between the instant of a sudden change in the value of the input quantity to an instrument and the time as from which the value of the output quantity is reliably maintained above 90 % of the correct value of the input quantity

Note 1 to entry: Adapted from EN 15267-3:2007, 3.31.

Note 2 to entry: The response time is also referred to as the 90 % time or t_{90} time.

[SOURCE: EN 15859:2010, 3.31]

3.21
uncertainty
parameter associated with the result of a measurement, which characterises the dispersion of the values that could reasonably be attributed to the measurand

[SOURCE: ISO/IEC GUIDE 98-3]

3.22
emissions limit value
ELV
limit values given in regulations such as EU Directives, ordinances, administrative regulations, permits, licences, authorisations or consents

Note 1 to entry: ELV can be stated as concentration limits expressed as half-hourly, hourly and daily averaged values, or mass flow limits expressed as hourly, daily, weekly, monthly or annually aggregated values.

[SOURCE: EN 15267-3:2007, 3.40]

4 Symbols and abbreviations

4.1 Symbols

a	intercept of the calibration function
b	slope of the calibration function
i	counter
N	number of parallel measurements
R^2	coefficient of determination
x_i	i^{th} filter dust monitor output; i = 1 to N
y_i	i^{th} SRM measured value; i = 1 to N
Z	offset as the difference between the instrument zero reading and zero