NSAI
Standards

Irish Standard
I.S. EN 14212:2012&AC:2014

Ambient air - Standard method for the measurement of the concentration of sulphur dioxide by ultraviolet fluorescence

I.S. EN 14212:2012&AC:2014

Incorporating amendments/corrigenda/National Annexes issued since publication:

EN 14212:2012/AC:2014

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

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EN 14212:2012	2012-08-22

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	NOTE: If blank see CEN/CENELEC cover page

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Údarás um Chaighdeáin Náisiúnta na hÉireann

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14212:2012/AC

April 2014
Avril 2014
April 2014

ICS 13.040.20

English version
Version Française
Deutsche Fassung

Ambient air - Standard method for the measurement of the concentration of sulphur dioxide by ultraviolet fluorescence

Air ambiant - Méthode normalisée pour le mesurage de la concentration en dioxyde de soufre par fluorescence U.V.

Außenluft - Messverfahren zur Bestimmung der Konzentration von Schwefeldioxid mit Ultraviolett-Fluoreszenz

This corrigendum becomes effective on 16 April 2014 for incorporation in the official English and French versions of the EN.

Ce corrigendum prendra effet le 16 avril 2014 pour incorporation dans les versions officielles anglaise et française de la EN.

Die Berichtigung tritt am 16. April 2014 zur Einarbeitung in die offizielle Englische und Französische Fassung der EN in Kraft.

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

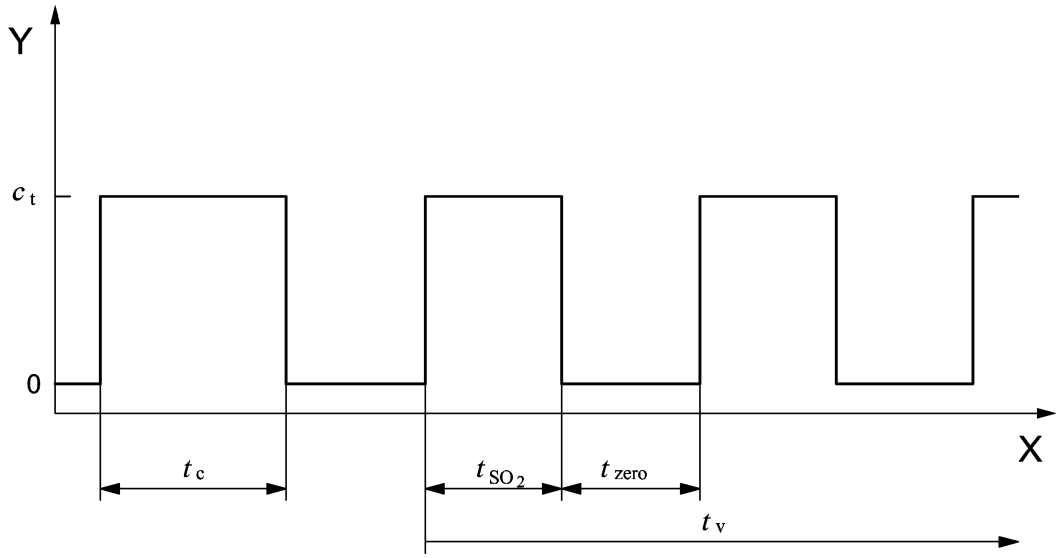
CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No.:EN 14212:2012/AC:2014 E/F

1 Modification to 8.4.12, Averaging test

Replace Figure 2 itself with the following figure:

"



".

2 Modification to E.2, Type approval Requirement a)

In Table E.1, in the rows "Short term drift at zero" (No. 13) and "Short term drift at span level" (No. 14), replace "$D_{l,z}$" and "$D_{l,s}$" *respectively with* "$D_{s,z}$" *and* "$D_{s,s}$".

3 Modification to G.2, Combined standard uncertainty

In Equation (G.3) and its related key, replace twice "l_h" *with* "l_d".

4 Modification to H.3, Standard uncertainties

Replace Equation (H.21) and its related key with the following:

"

$$u_{r,f,la} = \frac{s_{r,f} \cdot l_a}{100 \cdot \sqrt{n_a}} \qquad \text{(H.21)}$$

where

$u_{r,f,la}$ is the standard uncertainty at the annual critical level due to reproducibility under field conditions, in nmol/mol;

n_a is the number of valid hourly measurements in the year (≥ 7 884);

$s_{r,f}$ is the reproducibility standard deviation for SO_2 from the field test, in %;

l_a is the annual critical level of sulfur dioxide, in nmol/mol.

".

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14212

August 2012

ICS 13.040.20

Supersedes EN 14212:2005

English Version

Ambient air - Standard method for the measurement of the concentration of sulphur dioxide by ultraviolet fluorescence

Qualité de l'air ambiant - Méthode normalisée pour le mesurage de la concentration en dioxyde de soufre par fluorescence U.V.

Luftqualität - Messverfahren zur Bestimmung der Konzentration von Schwefeldioxid mit Ultraviolett-Fluoreszenz

This European Standard was approved by CEN on 10 May 2012.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 14212:2012: E

Contents

Foreword

This document (EN 14212:2012) 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 February 2013, and conflicting national standards shall be withdrawn at the latest by February 2013.

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 14212:2005.

The technical changes made since EN 14212:2005 are listed in Annex I of this European Standard.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: 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 European Standard specifies a continuous measurement method for the determination of the concentration of sulphur dioxide present in ambient air based on the ultraviolet fluorescence measuring principle. This standard describes the performance characteristics and sets the relevant minimum criteria required to select an appropriate ultraviolet fluorescence analyser by means of type approval tests. It also includes the evaluation of the suitability of an analyser for use in a specific fixed site so as to meet the data quality requirements as specified in Annex I of Directive 2008/50/EC [1] and requirements during sampling, calibration and quality assurance for use.

The method is applicable to the determination of the mass concentration of sulphur dioxide present in ambient air up to 1000 µg/m^3. This concentration range represents the certification range for SO_2 for the type approval test.

NOTE 1 Other ranges may be used depending on the levels present in ambient air.

NOTE 2 When the standard is used for other purposes than for measurements required by Directive 2008/50/EC, the ranges and uncertainty requirements may not apply.

The method covers the determination of ambient air concentrations of sulphur dioxide in zones classified as rural areas, urban-background areas and traffic-orientated locations and locations influenced by industrial sources.

The results are expressed in µg/m^3 (at 20 °C and 101,3 kPa).

NOTE 3 1 000 µg/m^3 of SO_2 corresponds to 376 nmol/mol of SO_2.

This standard contains information for different groups of users.

Clauses 5 to 7 and Annexes C and D contain general information about the principles of sulphur dioxide measurement by ultraviolet fluorescence analyser and sampling equipment.

Clause 8 and Annex E are specifically directed towards test houses and laboratories that perform type-approval testing of sulphur dioxide analysers. These sections contain information about:

— Type-approval test conditions, test procedures and test requirements;

— Analyser performance requirements;

— Evaluation of the type-approval test results;

— Evaluation of the uncertainty of the measurement results of the sulphur dioxide analyser based on the type-approval test results.

Clauses 9 to 11 and Annexes F and G are directed towards monitoring networks performing the practical measurements of sulphur dioxide in ambient air. These sections contain information about:

— Initial installation of the analyser in the monitoring network and acceptance testing;

— Ongoing quality assurance/quality control;

— Calculation and reporting of measurement results;

— Evaluation of the uncertainty of measurement results under practical monitoring conditions.

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.