BS EN 482:2012+A1:2015

BSI Standards Publication

Workplace exposure — General requirements for the performance of procedures for the measurement of chemical agents

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National foreword

This British Standard is the UK implementation of EN 482:2012+A1:2015. It supersedes BS EN 482:2012 which is withdrawn.

BSI, as a member of CEN, is obliged to publish EN 482:2012+A1:2015 as a British Standard. However, attention is drawn to the fact that during the development of this European Standard, the UK committee voted against its approval as a European Standard.

The reason for this is due to the inclusion of new subclause '5.4.6 Chemical agents with low limit values'. This new subclause allows the use of methods with greater variability for 'low' exposure limits, undermining the existing performance criteria.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by [A1] ⟨A1⟩.

The UK participation in its preparation was entrusted by Technical Committee EH/2, Air quality, to Subcommittee EH/2/2, Work place atmospheres.

A list of organizations represented on this subcommittee 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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Compliance with a British Standard cannot confer immunity from legal obligations.

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NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 482:2012+A1

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English Version

Workplace exposure - General requirements for the performance of procedures for the measurement of chemical agents

Exposition sur les lieux de travail - Exigences générales concernant les performances des procédures de mesure des agents chimiques

Exposition am Arbeitsplatz - Allgemeine Anforderungen an die Leistungsfähigkeit von Verfahren zur Messung chemischer Arbeitsstoffe

This European Standard was approved by CEN on 9 March 2012 and includes Amendment 1 approved by CEN on 15 August 2015.

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.

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European foreword

This document (EN 482:2012+A1:2015) has been prepared by Technical Committee CEN/TC 137 "Assessment of workplace exposure to chemical and biological agents", 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 April 2016, and conflicting national standards shall be withdrawn at the latest by April 2016.

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 includes Amendment 1 approved by CEN on 2015-08-15.

This document supersedes [A1⟩ EN 482:2012 ⟨A1].

The start and finish of text introduced or altered by amendment is indicated in the text by tags [A1⟩ ⟨A1].

[A1⟩ *deleted text* ⟨A1]

According to the CEN/CENELEC Internal Regulations, the national standards organizations 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.

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Introduction

National laws and regulations based on European Directives require the assessment of the potential exposure of a worker to chemical agents in workplace atmospheres. One way of assessing such exposure is to measure the concentration of a chemical agent in the air in the worker's breathing zone. The procedures used for such measurements should give reliable and valid results, so that when compared with set occupational exposure limit values, a correct decision can be made, for instance, as to whether the exposure level is acceptable or control measures need to be applied.

A1 Because of their importance in the process of exposure assessment, it is required that the measuring procedures fulfil some general requirements which are given in this document. Specific European Standards have been prepared for different types of measuring procedures and measuring devices. These include European Standards for airborne particle samplers (EN 13205-1), diffusive samplers (EN 838), pumped samplers (EN 1076), detector tubes (EN ISO 17621), sampling pumps (EN ISO 13137), metals and metalloids (EN 13890), mixtures of airborne particles and vapour (EN 13936) and direct reading instruments (EN 45544 (all parts)). In these specific European Standards, additional requirements have been included for the procedure or device in question, so that the general requirements of this document are not compromised. Where no specific European Standard exists, only the general requirements apply. A1

Performance requirements are given in this document for unambiguity, selectivity, averaging time, measuring range and expanded uncertainty for minimum specified measuring ranges. These requirements are intended to apply under environmental conditions present at the workplace. However, because a wide range of environmental conditions are encountered in practice, this document specifies requirements that have to be fulfilled by measuring procedures when tested under prescribed laboratory conditions.

It is the user's responsibility to choose the appropriate procedures or devices that meet the requirements of this document. One way of doing this is to obtain information or confirmation from the provider of a procedure or the manufacturer of a device. Type-testing or, more generally, assessment of the performance of procedures or devices, can be undertaken by the manufacturer, user, test house or research and development laboratory, as is most appropriate. A number of existing procedures for workplace measurements have either been tested over a part of the required minimum measuring range, but not over the entire range, or have not been tested for all environmental influences and potential interferences. If these partially validated procedures meet the performance requirements of this European Standard, they can be used at present. Nevertheless these procedures should be tested over the full ranges as soon as is reasonably practicable. If there is no measuring procedure for a chemical agent which meets the requirements of this document, a procedure should be used whose performance is closest to the specified requirements.

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1 Scope

A1 This European Standard specifies general requirements for the performance of procedures for the determination of the concentration of chemical agents in workplace atmospheres as required by the Chemical Agents Directive 98/24/EC (see reference [9]). The requirements given apply to all measuring procedures, irrespective of the physical form of the chemical agent (gas, vapour, airborne particles), the sampling method and the analytical method used. A1

This European Standard is applicable to

— all steps of a measuring procedure,

— measuring procedures with separate sampling and analysis steps, and

— direct-reading devices.

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.

A1 EN 481, *Workplace atmospheres - Size fraction definitions for measurement of airborne particles*

EN 838, *Workplace exposure - Procedures for measuring gases and vapours using diffusive samplers - Requirements and test methods*

EN 1076, *Workplace exposure - Procedures for measuring gases and vapours using pumped samplers - Requirements and test methods*

EN 1540, *Workplace exposure - Terminology*

EN 13205-1, *Workplace exposure - Assessment of sampler performance for measurement of airborne particle concentrations - Part 1: General requirements*

EN 13890, *Workplace exposure - Procedures for measuring metals and metalloids in airborne particles - Requirements and test methods*

EN 13936, *Workplace exposure - Procedures for measuring a chemical agent present as a mixture of airborne particles and vapour - Requirements and test methods*

EN 45544 (all parts), *Workplace atmospheres — Electrical apparatus used for the direct detection and direct concentration measurement of toxic gases and vapours*

EN ISO 13137, *Workplace atmospheres — Pumps for personal sampling of chemical and biological agents — Requirements and test methods (ISO 13137)*

EN ISO 17621, *Workplace atmospheres — Short term detector tube measurement systems — Requirements and test methods (ISO 17621)*

ISO 78-2, *Chemistry — Layouts for standards — Part 2: Methods of chemical analysis* A1

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