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BS EN 45544-3:2015



BSI Standards Publication

Workplace atmospheres — Electrical apparatus used for the direct detection and direct concentration measurement of toxic gases and vapours

Part 3: Performance requirements for
apparatus used for general gas detection

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This British Standard is the UK implementation of EN 45544-3:2015. It supersedes BS EN 45544-3:2000 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EXL/31/1, Gas detectors.

A list of organizations represented on this committee 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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ISBN 978 0 580 81575 1

ICS 13.040.30; 13.320

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 28 February 2015.

Amendments issued since publication

Date	Text affected
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EUROPÄISCHE NORM

January 2015

ICS 13.040.30; 13.320

Supersedes EN 45544-3:1999

English Version

Workplace atmospheres - Electrical apparatus used for the direct detection and direct concentration measurement of toxic gases and vapours - Part 3: Performance requirements for apparatus used for general gas detection

Atmosphères des lieux de travail - Appareillage électrique utilisé pour la détection directe des vapeurs et gaz toxiques et le mesurage direct de leur concentration - Partie 3: Exigences de performance des appareillages utilisés pour la détection de gaz générale

Arbeitsplatzatmosphäre - Elektrische Geräte für die direkte Detektion und direkte Konzentrationsmessung toxischer Gase und Dämpfe - Teil 3: Anforderungen an das Betriebsverhalten von Geräten, die für allgemeine Gaswarnanwendungen eingesetzt werden

This European Standard was approved by CENELEC on 24 November 2014. CEN and CENELEC 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 and CENELEC 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 and CENELEC 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 Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This document (EN 45544-3:2015) has been prepared by CEN/CENELEC Joint Working Group Continuous Measuring Instruments (JWG CMI).

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2015-11-24
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2017-11-24

This document supersedes EN 45544-3:1999.

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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.

EN 45544, *Workplace atmospheres – Electrical apparatus used for the direct detection and direct concentration measurement of toxic gases and vapours*, consists of the following parts:

- *Part 1: General requirements and test methods;*
- *Part 2: Performance requirements for apparatus used for exposure measurement;*
- *Part 3: Performance requirements for apparatus used for general gas detection;*
- *Part 4: Guide for selection, installation, use and maintenance.*

EN 45544 series is based on EN 482 which specifies general performance requirements for procedures for measuring the concentration of chemical agents in workplace atmospheres. These performance 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.

EN 45544-2 details the performance requirements outlined in EN 482 specifically for electrical apparatus used for the direct detection and direct concentration measurement of toxic gases and vapours intended for exposure measurement.

EN 45544-3 details the performance requirements for general gas detection apparatus, e.g. safety warning, leak detection. The measuring range will be defined by the manufacturer. In general, the requirements for accuracy will be higher for EN 45544-2 apparatus than for EN 45544-3 apparatus.

The same apparatus may be used for applications covered by EN 45544-2 and EN 45544-3.

EN 45544 series will help manufacturers, test laboratories and users of apparatus to adopt a consistent approach to, and provide a framework for, the assessment of performance criteria. It is the manufacturer's primary responsibility to ensure that the apparatus meets the requirements laid down in this European Standard including environmental influences which can be expected to affect performance.

Electrical apparatus used for the direct detection and direct concentration measurement of toxic gases and vapours generate readings in clean air (zero readings) which vary with environmental conditions and time. This standard therefore also includes test methods and requirements for acceptable variations in zero readings.

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1 Scope

This European Standard specifies the performance requirements for electrical apparatus used for the direct detection and direct concentration measurement of toxic gases and vapours in workplace atmospheres.

This European Standard is applicable to apparatus used for general gas detection.

EXAMPLE Safety warning and leak detection are examples of general gas detection.

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.

EN 45544-1:2015, *Workplace atmospheres - Electrical apparatus used for the direct detection and direct concentration measurement of toxic gases and vapours - Part 1: General requirements and test methods*

EN 50270, *Electromagnetic compatibility - Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen*

EN 50271, *Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen - Requirements and tests for apparatus using software and/or digital technologies*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 45544-1:2015 apply.

4 General requirements

Unless otherwise stated, the apparatus shall conform to the general requirements of EN 45544-1:2015, Clause 4 and these requirements shall be verified by visual inspection and by tests according to EN 45544-1:2015, 5.2.5.

5 Performance requirements

5.1 General

The apparatus shall be tested in accordance with rEN 45544-1:2015, Clause 5. A test report shall be prepared in accordance with EN 45544-1:2015, Clause 7.

5.2 Standard requirements

The performance requirements referred to in 5.5 to 5.9 shall be as specified below:

- a) the deviation of the measured values in clean air shall be less than or equal to 10 % of the measuring range.