EESTI STANDARD EVS-EN 50241-1:2001

Gaaside ja aurude avastamiseks mõeldud avatud trajektooriga aparaadi spetsifikatsioon . Osa 1: Üldnõuded ja katsemeetodid

Specification for open path apparatus for the detection of gases and vapours - Part 1: General requirements and test methods

EESTI STANDARDIKESKUS

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 50241-1:2001 sisaldab Euroopa standardi EN 50241-1:1999 ingliskeelset teksti. Käesolev dokument on jõustatud 19.06.2001 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 50241-1:2001 consists of the English text of the European standard EN 50241-1:1999. This document is endorsed on 19.06.2001 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This European Standard specifies general requirements for the construction and testing of apparatus for the detection and measuring of combustible or toxic gases or vapours in ambient air by measuring the spectral absorption by the gases or vapours over extended optical paths, ranging typically from one metre to a few kilometres. Such apparatus measures the integral concentration of the absorbing gas over the optical path in units such as LEL metres for combustible gases and ppm metres for toxic gases.	**Scope:** This European Standard specifies general requirements for the construction and testing of apparatus for the detection and measuring of combustible or toxic gases or vapours in ambient air by measuring the spectral absorption by the gases or vapours over extended optical paths, ranging typically from one metre to a few kilometres. Such apparatus measures the integral concentration of the absorbing gas over the optical path in units such as LEL metres for combustible gases and ppm metres for toxic gases.

ICS 13.320, 19.080

Võtmesõnad:

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50241-1

April 1999

ICS 13.320; 19.080

English version

Specification for open path apparatus for the detection of combustible or toxic gases and vapours Part 1: General requirements and test methods

Spécifications pour les détecteurs à chemin optique ouvert de gaz et vapeurs toxiques
Partie 1: Règles générales et méthodes d'essai

Anforderungen an Geräte mit offener Meßtrecke für die Detektion brennbarer oder toxischer Gase und Dämpfe
Teil 1: Allgemeine Anforderungen und Prüfverfahren

This European Standard was approved by CENELEC on 1998-10-01. 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 Central Secretariat or to any 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 50241-1:1999 E

Foreword

This European Standard was prepared by SC 31-9, Electrical apparatus for the detection and measurement of combustible gases to be used in industrial and commercial potentially explosive atmospheres, of Technical Committee CENELEC TC 31, Electrical apparatus for explosive atmospheres

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50241-1 on 1998-10-01.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	1999-10-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	1999-10-01

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and covers essential requirements of EC Directive 94/9/EC.

1 Scope

This European Standard specifies general requirements for the construction and testing of apparatus for the detection and measuring of combustible or toxic[1] gases or vapours in ambient air by measuring the spectral absorption by the gases or vapours over extended optical paths, ranging typically from one metre to a few kilometres.

Such apparatus measures the integral concentration of the absorbing gas over the optical path in units such as LEL metre for combustible gases and ppm metre for toxic gases.

NOTE 1: Actual values of concentration can only be deduced where it can be established that the concentration is uniform over the optical path, as for example in very short optical paths (<100 mm). In such cases, the apparatus is within the scope of EN 50054 - EN 50058 and prEN 45544-1 to prEN 45544-4.

Apparatus falling within the scope of this European Standard is classified as follows by the following types.

Type 1: an optical transmitter and receiver, located at either end of a path through the atmosphere to be monitored.

Type 2: an optical transceiver (i.e. combined transmitter and receiver) and a suitable reflector, which may be a topographic feature or a retroreflector, located at either end of a path through the atmosphere to be monitored.

This European Standard does not apply to any of the following:

1. Apparatus intended to provide range resolution of gas concentration (e.g. LIDAR),
2. Apparatus consisting of a passive optical receiver without a dedicated optical source,
3. Apparatus intended to measure the local volumetric concentration of gas (point sensors),
4. Apparatus intended for the detection of dusts or mists in air,
5. Apparatus for cross stack monitoring,
6. Apparatus intended for the detection of explosives and vapours, and
7. Apparatus intended for quantitative and simultaneous multicomponent analysis, e.g. FTIR.

This European Standard covering general requirements and test methods is supplemented by the following European Standard concerning specific requirements of performance:

EN 50241-2 : Performance requirements for apparatus for the detection of combustible gases.

This European Standard is applicable to apparatus which is intended for use in both hazardous and non hazardous areas. Apparatus for use in hazardous areas which may contain potentially combustible atmospheres is required to be designed for safe operation, see 4.1.2.

This European Standard applies to transportable, and fixed apparatus intended for commercial and industrial applications.

NOTE 2: This European Standard and EN 50241-2 as referenced above are intended to provide for the supply of apparatus giving a level of performance suitable for general purpose applications. However, for specific applications a prospective purchaser or an appropriate authority may additionally require apparatus to be submitted to particular tests or approval. Such tests or approval are to be regarded as additional to and separate from the provisions from the European Standards referred to above.

[1] The word 'Toxic' is used in accordance with its dictionary definition and includes 'harmful', 'toxic' and 'very toxic' meanings.

2 Normative references

This European Standard incorporates by dated or undated references, provisions from other publications. These normative references are cited at the appropriate place in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 50270	1999	Electromagnetic compatibility : electrical apparatus for the detection and measurement
EN 60068-2-6	1995	Environmental testing - Part 2-6: Test Fc and guidance: Vibration (sinusoidal)
EN 60825-1	1994	Safety of laser products - Part 1: Equipment classification, requirements and user's guide

3 Definitions

The following definitions are applicable for all parts of this European Standard.

3.1 Apparatus

3.1.1
alarm only apparatus
Apparatus which generates an alarm signal but does not have a meter or output giving a measure of the integral concentration.

3.1.2
fixed apparatus
An apparatus which is intended to have all its parts permanently installed.

3.1.3
transportable apparatus
Apparatus which is not intended to be portable, but which can be moved from one place to another and used after alignment.

3.2 Alarms

3.2.1
alarm set point
A fixed or adjustable setting of the apparatus that is intended to pre-set the value of integral concentration at which the apparatus will automatically initiate an indication, alarm, or other output function.

3.2.2
alarm signal
An audible, visual, electronic or other signal generated by the apparatus when an integral concentration of gas in excess of a pre-set value is detected.

3.2.3
latching alarm
An alarm which, once activated, requires a deliberate action to deactivate it.