SVENSK STANDARD SS-EN 60079-29-2

Fastställd	Utgåva	Sida	Ansvarig kommitté
2008-11-17	1	1 (1+102)	SEK TK 31

Explosiv atmosfär – Del 29-2: Gasdetektorer (gasvarnare) – Vägledning vid val, installation, användning och underhåll av utrustning för detektering av brännbara gaser och syrgas

Explosive atmospheres – Part 29-2: Gas detectors – Selection, installation, use and maintenance of detectors for flammable gases and oxygen

Som svensk standard gäller europastandarden EN 60079-29-2:2007. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60079-29-2:2007[*)].

Nationellt förord

Europastandarden EN 60079-29-2:2007

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60079-29-2, First edition, 2007 - Explosive atmospheres - Part 29-2: Gas detectors - Selection, installation, use and maintenance of detectors for flammable gases and oxygen**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med SS-EN 60079-0 och SS-EN 60079-29-1.

Tidigare fastställd svensk standard SS-EN 50073, utgåva 1, 2000, gäller ej fr o m 2010-11-01.

[*)] Corrigendum, December 2007, till EN 60079-29-2, är inarbetat i texten.

ICS 29.260.20

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
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Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

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Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60079-29-2

November 2007

ICS 29.260.20

Supersedes EN 50073:1999
Incorporates Corrigendum December 2007

English version

Explosive atmospheres - Part 29-2: Gas detectors - Selection, installation, use and maintenance of detectors for flammable gases and oxygen

(IEC 60079-29-2:2007)

Atmosphères explosives - Partie 29-2: Détecteurs de gaz - Sélection, installation, utilisation et maintenance des détecteurs de gaz inflammables et d'oxygène (CEI 60079-29-2:2007)

Explosionsfähige Atmosphäre - Teil 29-2: Gasmessgeräte - Auswahl, Installation, Einsatz und Wartung von Geräten für die Messung von brennbaren Gasen und Sauerstoff (IEC 60079-29-2:2007)

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 60079-29-2:2007 E

SEK Svensk Elstandard

Foreword

The text of document 31/696/FDIS, future edition 1 of IEC 60079-29-2, prepared by IEC TC 31, Equipment for explosive atmospheres, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60079-29-2 on 2007-11-01.

This European Standard supersedes EN 50073:1999.

This part of EN 60079-29 is to be used in conjunction with the following standards:

– EN 60079-0, Electrical apparatus for explosive gas atmospheres – Part 0: General requirements

– EN 60079-29-1, Explosive atmospheres – Part 29-1: Gas detectors – Performance requirements of detectors for flammable gases.

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)	2008-11-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2010-11-01

Annex ZA has been added by CENELEC.

The contents of the corrigendum of December 2007 have been included in this copy.

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Endorsement notice

The text of the International Standard IEC 60079-29-2:2007 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60079-19	NOTE	Harmonized as EN 60079-19:2007 (not modified).

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60050-426	– [1)]	International Electrotechnical Vocabulary (IEV) - Chapter 426: Electrical apparatus for explosive atmospheres	-	-
IEC 60079-0 (mod)	– [1)]	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements	EN 60079-0	2006 [2)]
IEC 60079-10	– [1)]	Electrical apparatus for explosive gas atmospheres - Part 10: Classification of hazardous areas	EN 60079-10	2003 [2)]
IEC/TR 60079-20	– [1)]	Electrical apparatus for explosive gas atmospheres - Part 20: Data for flammable gases and vapours, relating to the use of electrical apparatus	-	-
IEC 60079-29-1 (mod)	– [1)]	Explosive atmospheres - Part 29-1: Gas detectors - Performance requirements of detectors for flammable gases	EN 60079-29-1	2007 [2)]

[1)] Undated reference.

[2)] Valid edition at date of issue.

CONTENTS

INTRODUCTION

Flammable gas detection apparatus may be used whenever there is the possibility of a hazard to life or property caused by the accumulation of a flammable gas-air mixture. Such apparatus can provide a means of reducing the hazard by detecting the presence of a flammable gas and issuing suitable audible or visual warnings. Gas detectors may also be used to initiate precautionary steps (for example plant shutdown, evacuation, and operation of fire extinguishing procedures).

Apparatus may be used to monitor a gas atmosphere below the lower flammable limit in circumstances where accumulation of gas may result in a concentration of the gas/air mixture to potentially explosive levels. Performance requirements for gas detecting apparatus for such purposes are set out in IEC 60079-29-1.

However performance capability alone cannot ensure that the use of such apparatus will properly safeguard life or property where flammable gases may be present. The level of safety obtained depends heavily upon correct selection, installation, calibration and periodic maintenance of the apparatus, combined with knowledge of the limitations of the detection technique required. This cannot be achieved without responsible informed management.

An additional hazard to life is the toxicity of some gases and of the vapours of all liquids except water. It is not generally appreciated that all flammable vapours are potentially toxic at concentration levels which are very small fractions of their respective lower flammable limits. Apparatus covered by the IEC 60079-29-1 is not specifically intended for toxic protection, and additional personal protection precautions will normally be needed where personnel could be exposed to toxic vapours.

Portable apparatus covered by the IEC 60079-29-1 and the IEC 60079-29-2 commonly have additional detectors for specific toxic gases and also for oxygen deficiency. Users are cautioned that even mild oxygen deficiency may be due to toxic concentrations of some other gas or vapour, which may not be detectable or adequately detected by the apparatus in use.

General requirements for the handbook or manual of any particular flammable gas detection apparatus are specified in IEC 60079-29-1. This standard provides some necessary background knowledge on the points mentioned above.

This standard has been specifically written to cover all the functions necessary to go from the need for gas detection all the way through ongoing maintenance of a successful gas detection operation. Different clauses are appropriate for different tasks within this range of operations. Each clause has been written as stand-alone as far as practicable. This meant that some information is repeated in different clauses but with a different emphasis.

The following table gives a broad suggestion as to the most relevant clauses to the typically tasks to be performed.

	Definitions	Basic information properties of gas and vapours	Measuring principles	Selection of apparatus	Behaviour of gas releases	Design and installation of fixed gas detection systems	Use of portable and transportable flammable gas detection apparatus	Training of operational personnel	Maintenance, routines procedures General administrative control	Measuring principles (full detail) (normative)	Environmental parameters (informative)
Function (Clause)	3	4	5	6	7	8	9	10	11	Annex A	Annex B
Authorities	+	+++	+++	+	+	-	-	-	+	-	-
General management	+	+++	+++	+	+	-	-	+	+	-	+
Selection	+++	+++	+	+++	+++	+	++	-	+	+++	+++
Design engineering / management	+++	+++	+	+++	+++	+++	-	-	-	+++	+++
Installation engineering / management	+++	+++	+	++	+++	+++	-	-	-	+++	+++
Installation, technical	++	+++	++	++	++	++	-	-	-	+	++
Commissioning	+++	+++	++	+	++	+++	-	++	+	-	-
Operations management	++	+++	++	+	+	++	++	+++	+++	+	+++
Operation training	+++	+++	+	+	+	+++	+++	+++	+++	+++	+++
Servicing / Calibration	+++	+++	-	-	-	++	++	+	+++	++	++
Repair	++	+++	++	-	-	+	+	+	+++	++	-

"**+++**" Essential
"**++**" Advisable
"**+**" Useful
"-" Not applicable

NOTE It should be noted that Clause 5 is a simplified version of Annex A.

This standard makes recommendations how to establish maintenance and calibration intervals. In certain countries there are general or industry-specific regulations that are mandatory and those shall be followed as a minimum requirement.

EXPLOSIVE ATMOSPHERES –

Part 29-2: Gas detectors – Selection, installation, use and maintenance of detectors for flammable gases and oxygen

1 Scope

This part of IEC 60079-29 gives guidance on, and recommended practice for, the selection, installation, safe use and maintenance of electrically operated group II apparatus intended for use in industrial and commercial safety applications for the detection and measurement of flammable gases complying with the requirements of IEC 60079-29-1.

This standard is applicable for oxygen measurement for the purpose of inertisation where explosion protection is provided by the exclusion of oxygen instead of measuring the combustible gases or vapours present.

This standard is a compilation of practical knowledge to assist the user, and applies to apparatus, instruments and systems that indicate the presence of a flammable or potentially explosive mixture of gas or vapour with air by using an electrical signal from a gas sensor to produce a meter reading, to activate a visual or audible pre-set alarm or other device, or any combination of these.

Such apparatus may be used as a means of reducing the risk whenever there is the possibility of a risk to life or property specifically due to the accumulation of a combustible gas-air mixture, by providing such warnings. It may also be used to initiate specific safety precautions (e.g. plant shutdown, evacuation, fire extinguishing procedures).

This standard is applicable to all new permanent installations and, where reasonably practicable, to existing permanent installations. It is also applicable to temporary installations, whether new or existing.

Similarly it is applicable to the safe use of portable or transportable apparatus, irrespective of the age or complexity of such apparatus. Since much modern apparatus of this type also includes oxygen deficiency detection and/or specific toxic gas sensors, some additional guidance is given for these topics.

NOTE When in classified areas, the apparatus should be so installed and used that it is not capable of itself igniting a combustible gas-air mixture. It should therefore comply with the requirements of IEC 60079-10.

For the purposes of this standard, except where specifically stated otherwise, flammable gases shall include flammable vapours.

This standard applies only to group II apparatus (i.e. apparatus intended for use in industrial and commercial safety applications, involving areas classified in accordance with IEC 60079-10).

For the purposes of this standard, apparatus includes

a) fixed apparatus;

b) transportable apparatus; and

c) portable apparatus.

This standard is not intended to cover, but may provide useful information, for the following:

a) apparatus intended only for the detection of non-flammable toxic gases;
b) apparatus of laboratory or scientific type intended only for analysis or measurement purposes;
c) apparatus intended for underground mining applications (group I apparatus);
d) apparatus intended only for process control applications;
e) apparatus intended for applications in explosives processing and manufacture;
f) apparatus intended for the detection of a potentially flammable atmosphere resulting from dust or mist in air;
g) open path apparatus not used for point measurement.

2 Normative references

The following referenced documents are indispensable for the application 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.

IEC 60050-426, *International Electrotechnical Vocabulary (IEV) – Chapter 426: Electrical apparatus for explosive atmospheres*

IEC 60079-0, *Electrical apparatus for explosive gas atmospheres – Part 0: General requirements*

IEC 60079-10, *Electrical apparatus for explosive gas atmospheres – Part 10: Classification of hazardous areas*

IEC 60079-20, *Electrical apparatus for explosive gas atmospheres – Part 20: Data for flammable gases and vapours, relating to the use of electrical apparatus*

IEC 60079-29-1, *Explosive atmosphere – Part 29-1: Gas detectors – Performance requirements*