

საქართველოს სტანდარტი

ფეთქებადსაშიში გარემო-ნაწილი 29-1: გაზის დეტექტორები- შერულების მოთხოვნები დეტექტორების აალებადი გაზებისათვის იეკ 60079-29-1:2016 (მოდიფიცირებული)

საქართველოს სტანდარტებისა და მეტროლოგიის
ეროვნული სააგენტო
თბილისი

სსტ ენ 60079-29-1:2016/2017

საინფორმაციო მონაცემები

1 შემუშავებულია საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს სტანდარტების დეპარტამენტის მიერ

2 დამტკიცებულია და შემოღებულია სამოქმედოდ საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს 2017 წლის 27 დეკემბრის № 104 განკარგულებით

3 მიღებულია გარეკანის თარგმნის მეთოდით სტანდარტიზაციის ევროპული კომიტეტის სტანდარტი ენ 60079-29-1:2016 „ ფეთქებადსაშიში გარემო-ნაწილი 29-1: გაზის დეტექტორები- შერულების მოთხოვნები დეტექტორების აალებადი გაზებისათვის იეკ 60079-29-1:2016 (მოდულიზირებული)“

4 პირველად

5 რეგისტრირებულია საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს რეესტრში: 2017 წლის 27 დეკემბერი №268-1.3-012503

აკრძალულია ამ სტანდარტის გადაცემა მესამე პირებისათვის ან/და მისი სხვა ფორმით გავრცელება

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English Version

Explosive atmospheres - Part 29-1: Gas detectors - Performance requirements of detectors for flammable gases (IEC 60079-29-1:2016 , modified)

Atmosphères explosives - Partie 29-1: Détecteurs de gaz -
Exigences d'aptitude à la fonction des détecteurs de gaz
inflammables
(IEC 60079-29-1:2016 , modifiée)

Explosionsfähige Atmosphäre - Teil 29-1: Gasmessgeräte -
Anforderungen an das Betriebsverhalten von Geräten für
die Messung brennbarer Gase
(IEC 60079-29-1:2016 , modifiziert)

This European Standard was approved by CENELEC on 2016-09-19. 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 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 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

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

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European foreword

The text of document 31/1257/FDIS, future edition 2 of IEC 60079-29-1, prepared by IEC/TC 31 "Equipment for explosive atmospheres" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60079-29-1:2016.

A draft amendment, which covers common modifications to IEC 60079-29-1 (31/1257/FDIS), 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 CLC/TC 31 "Electrical apparatus for potentially explosive atmospheres" and approved by CENELEC.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2017-06-23
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-12-23

This document supersedes EN 60079-29-1:2007.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 60079-29-1:2016 are prefixed "Z".

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive.

For the relationship with EU Directive see informative Annex ZZ, which is an integral part of this document.

Endorsement notice

The text of the International Standard IEC 60079-29-1:2016 was approved by CENELEC as a European Standard with agreed common modifications.

COMMON MODIFICATIONS

Introduction

Replace "IEC 60079-29" by "EN 60079-29".

Replace "IEC 60079-29-2" by "EN 60079-29-2".

Replace "IEC 60079-29-3" by "EN 60079-29-3".

Replace "IEC 60079-29-4" by "EN 60079-29-4".

1 Scope

Replace "IEC 60079-29" by "EN 60079-29" (7 times).

Replace "IEC 60079-29-4" by "EN 60079-29-4".

Replace "IEC 60079-0" by "EN 60079-0" (twice).

Replace "IEC 60079-29-1" by "EN 60079-29-1" (twice).

Delete NOTE 1 and **renumber** NOTE 2 to NOTE 3 as NOTE 1 to NOTE 2.

2 Normative references

Add the following references:

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*

Replace "IEC 60079-0" by "EN 60079-0".

Replace "IEC 60068-2-6" by "EN 60068-2-6".

Replace "IEC 60079-20-1" by "EN 60079-20-1".

Delete IEC 61326-1:2012.

საინფორმაციო ნაწილი. სრული ტექსტის საწინააღმდეგო შეიძინეთ სტანდარტი.

3 Terms and definitions

In the first paragraph, **replace** "IEC 60079-0" by "EN 60079-0".

In 3.1.3, **replace** "IEC 60079-29" by "EN 60079-29" (twice).

In 3.1.4, **replace** NOTE 1 by the following:

"Note 1 to entry: This is also known as lower explosive limit (LEL)."

In 3.1.6, **replace** NOTE 1 by the following:

"Note 1 to entry: This is also known as upper explosive limit (UEL)."

4 General requirements

In 4.1.1, **replace** "IEC 60079-29" by "EN 60079-29".

In 4.1.2, at the end of the first paragraph, **replace** "... in the other relevant parts of the IEC 60079 series" by "...in the appropriate regulations for explosion protection".

Replace the whole subclause 4.2.9 up to 4.2.9.7 included by the following:

"4.2.9 Apparatus using software and/or digital technologies

The equipment shall fulfil the requirements of EN 50271.

Software-controlled accessories shall be included where related to safety."

In 4.3, **replace** "IEC 60079-0" by "EN 60079-0" (once) and "IEC 60079-29-1" by "EN 60079-29-1" (twice).

In 4.4, list item c) 5), **replace** "IEC 60079-29-2" by "EN 60079-29-2".

In 4.4, list item f), **replace** "IEC 60079-20-1" by "EN 60079-20-1".

In 4.4, list item q), **replace** "IEC 60529" by "EN 60529".

5 Test methods

In 5.2.1, **replace** "IEC 60079-20-1" by "EN 60079-20-1".

In 5.4.12.1 and in 5.4.12.2.1, **replace** "IEC 60068-2-6" by "EN 60068-2-6".

In 5.4.20.2, NOTE 2, **replace** "IEC 60079-29-2" by "EN 60079-29-2".

Replace the whole subclause 5.4.21 by the following:

"5.4.21 Electromagnetic compatibility

The equipment shall be set up under normal conditions, in accordance with 5.3, and then shall be subjected to the tests specified in EN 50270."

Replace the whole subclause 5.4.23 by the following:

"5.4.23 Verification of software and digital components

Design and function of the equipment using software and/or digital technologies shall be evaluated and tested in accordance with EN 50271."

Annexes

*In Table A.1 – Performance requirements, **replace** the row referring to 5.4.21 by:*

Sub-clause	Test	Group I equipment limits (whichever value is greater)		Group II equipment limits (whichever value is greater)		
		Volume fraction up to 5 % methane in air indication	Volume fraction up to 100 % methane in air indication	Volume fraction up to 20 % lower flammable limit indication	Volume fraction up to 100 % lower flammable limit indication	Volume fraction up to 100 % gas indication
5.4.21	Electromagnetic compatibility	According to EN 50270	According to EN 50270	According to EN 50270	According to EN 50270	According to EN 50270

Add the following annexes.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
-	-	Electromagnetic compatibility - Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen	EN 50270	-
-	-	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	EN 50271	-
IEC 60050-426	-	International Electrotechnical Vocabulary - Part 426: Equipment for explosive atmospheres	-	-
IEC 60068-2-6	-	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60079-0	-	Explosive atmospheres - Part 0: Equipment - General requirements	EN 60079-0	-
IEC 60079-20-1	-	Explosive atmospheres - Part 20-1: Material characteristics for gas and vapour classification - Test methods and data	EN 60079-20-1	-

Annex ZZ (informative)

Relationship between this European Standard and the essential requirements of Directive 2014/34/EU [2014 OJ L96] aimed to be covered

This European Standard has been prepared under a Commission's standardization request [Full reference to the request "M/xxx" ¹⁾ to provide one voluntary means of conforming to essential requirements of *Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres* [2014 OJ L96].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

**Table ZZ.1 – Correspondence between this European Standard and
Annex II of Directive 2014/34/EU [2014 OJ L96]**

Essential Requirements of Directive 2014/34/EU	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
1.5.5 - 1.5.7	whole standard except 4.2.9 and 5.4.23	
1.5.8	4.2.9, 5.4.23	

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

¹⁾ Mandate not yet available.

Bibliography

Add the following notes for the standards indicated:

IEC 60529	NOTE	Harmonized as EN 60529.
IEC 60079-1	NOTE	Harmonized as EN 60079-1.
IEC 60079-2	NOTE	Harmonized as EN 60079-2.
IEC 60079-5	NOTE	Harmonized as EN 60079-5.
IEC 60079-6	NOTE	Harmonized as EN 60079-6.
IEC 60079-7	NOTE	Harmonized as EN 60079-7.
IEC 60079-10-1	NOTE	Harmonized as EN 60079-10-1.
IEC 60079-11	NOTE	Harmonized as EN 60079-11.
IEC 60079-15	NOTE	Harmonized as EN 60079-15.
IEC 60079-18	NOTE	Harmonized as EN 60079-18.
IEC 60079-25	NOTE	Harmonized as EN 60079-25.
IEC 60079-26	NOTE	Harmonized as EN 60079-26.
IEC 60079-29-2	NOTE	Harmonized as EN 60079-29-2.
IEC 60079-29-3	NOTE	Harmonized as EN 60079-29-3.
IEC 60079-29-4	NOTE	Harmonized as EN 60079-29-4.
ISO 6142	NOTE	Harmonized as EN ISO 6142 2).
ISO 6145-1	NOTE	Harmonized as EN ISO 6145-1.
ISO 6145-4	NOTE	Harmonized as EN ISO 6145-4.
ISO 6145-5	NOTE	Harmonized as EN ISO 6145-5.
ISO 6145-6	NOTE	Harmonized as EN ISO 6145-6.
ISO 6145-7	NOTE	Harmonized as EN ISO 6145-7.
ISO 6145-9	NOTE	Harmonized as EN ISO 6145-9.
ISO 6145-10	NOTE	Harmonized as EN ISO 6145-10.

2) Superseded by EN ISO 6142-1 (ISO 6142-1).

INTERNATIONAL STANDARD

**Explosive atmospheres –
Part 29-1: Gas detectors – Performance requirements of detectors for flammable
gases**



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INTERNATIONAL STANDARD

**Explosive atmospheres –
Part 29-1: Gas detectors – Performance requirements of detectors for flammable
gases**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

IEC 60079-29-1
Edition 2.0 2016-07

EXPLOSIVE ATMOSPHERES –

**Part 29-1: Gas detectors –
Performance requirements of detectors for flammable gases**

INTERPRETATION SHEET 1

This interpretation sheet has been prepared by IEC technical committee 31: Equipment for explosive atmospheres.

The text of this interpretation sheet is based on the following documents:

DISH	Report on voting
31/1456/DISH	31/1462/RVDISH

Full information on the voting for the approval of this interpretation sheet can be found in the report on voting indicated in the above table.

In accordance with Administrative Circular AC/42/2004: New procedures for interpretation of standards, Annex 2: New text for ISO/IEC Directives (IEC Supplement), there has been a request for formal interpretation of the Air Velocity test acceptance criterion in the performance standard IEC 60079-29-1:2016.

Question:

Is the acceptance criteria for the Air Velocity test to be assessed based upon variation from the 0 m/s reading?

Interpretation:

Some of the performance tests are intended to be an accuracy based assessment from the applied gas concentration (eg. Short Term Stability and Calibration Curve). Other performance tests are intended to be a variation based assessment from a known baseline (eg. Baseline at 20 °C for Temperature test and baseline at 100 kPa for Pressure test).

In review of the air velocity acceptance criteria, the format is the same as the Short Term Stability and Calibration Curve and therefore this is intended to be an accuracy based assessment.

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

IEC 60079-29-1
Edition 2.0 2016-07

EXPLOSIVE ATMOSPHERES –

**Part 29-1: Gas detectors –
Performance requirements of detectors for flammable gases**

INTERPRETATION SHEET 2

This interpretation sheet has been prepared by IEC technical committee 31: Equipment for explosive atmospheres.

The text of this interpretation sheet is based on the following documents:

DISH	Report on voting
31/1457/DISH	31/1467/RVDISH

Full information on the voting for the approval of this interpretation sheet can be found in the report on voting indicated in the above table.

In accordance with Administrative Circular AC/42/2004: New procedures for Interpretation of standards, Annex 2: New text for ISO/IEC Directives (IEC Supplement), there has been a request for formal interpretation of the required testing for each general purpose test gas for performance standard IEC 60079-29-1:2016, Subclause 5.3.2 (c), by the Australian National Committee. The requirement is stated as follows:

- c) Methane, and propane or butane for equipment intended for general purpose flammable gas detection (in order to get representative results, e.g. concerning sensitivity, response times and drift).

Question:

Is the interpretation of this text that propane or butane required tests are only Calibration and adjustment (5.4.3), Short-term stability (5.4.4.2), and Time of response (5.4.15)?

Interpretation:

No, for general purpose equipment evaluation to two gases is essential in order to get representative test results. Therefore, all tests need to be conducted for the two gases unless otherwise specified (e.g. EMC as outlined in IEC 60079-29-1/AMD1:—1).

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.

¹ Under preparation. Stage at the time of publication: IEC/CCDV 60079-29-1/AMD1:2019.

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