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Standards

Irish Standard  
I.S. EN 60079-10-2:2015

# Explosive atmospheres - Part 10-2: Classification of areas - Explosive dust atmospheres

**I.S. EN 60079-10-2:2015**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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March 2015

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English Version

**Explosive atmospheres - Part 10-2: Classification of areas -  
Explosive dust atmospheres  
(IEC 60079-10-2:2015)**

Atmosphères explosives - Partie 10-2: Classement des  
emplacements - Atmosphères explosives poussiéreuses  
(IEC 60079-10-2:2015)

Explosionsgefährdete Bereiche - Teil 10-2: Einteilung der  
Bereiche - Staubexplosionsgefährdete Bereiche  
(IEC 60079-10-2:2015)

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Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

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

## Foreword

The text of document 31J/244/FDIS, future edition 2 of IEC 60079-10-2, prepared by SC 31J "Classification of hazardous areas and installation requirements" of IEC/TC 31 "Equipment for explosive atmospheres" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60079-10-2:2015.

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) 2015-11-20
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-02-20

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IEC 60079-2	NOTE	Harmonized as EN 60079-2.
IEC 60079-11	NOTE	Harmonized as EN 60079-11.
IEC 60079-14	NOTE	Harmonized as EN 60079-14.
IEC 60079-28	NOTE	Harmonized as EN 60079-28.
IEC 60079-18	NOTE	Harmonized as EN 60079-18.
IEC 60079-31	NOTE	Harmonized as EN 60079-31.
IEC 60079-32-2	NOTE	Harmonized as EN 60079-32-2.

## 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](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60079-0 (mod)	-	Explosive atmospheres -- Part 0: Equipment - General requirements	EN 60079-0	-
			+A11	2013
IEC 60079-10-1	-	Explosive atmospheres -- Part 10-1: Classification of areas - Explosive gas atmospheres	EN 60079-10-1	-
ISO/IEC 80079-20-2	-	Explosive atmospheres - Part 20-2: Material characteristics - Combustible dusts test methods	-	-

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**IEC 60079-10-2**

Edition 2.0 2015-01

# **INTERNATIONAL STANDARD**

# **NORME INTERNATIONALE**

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**Explosive atmospheres –  
Part 10-2: Classification of areas – Explosive dust atmospheres**

**Atmosphères explosives –  
Partie 10-2: Classement des emplacements – Atmosphères explosives  
poussiéreuses**





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**IEC 60079-10-2**

Edition 2.0 2015-01

# **INTERNATIONAL STANDARD**

# **NORME INTERNATIONALE**

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**Explosive atmospheres –  
Part 10-2: Classification of areas – Explosive dust atmospheres**

**Atmosphères explosives –  
Partie 10-2: Classement des emplacements – Atmosphères explosives  
poussiéreuses**

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## CONTENTS

FOREWORD .....	4
INTRODUCTION .....	7
1 Scope .....	8
2 Normative references .....	9
3 Terms and definitions .....	9
4 Area classification .....	12
4.1 General.....	12
4.2 Area classification procedure for explosive dust atmospheres .....	13
4.3 Competence of personnel .....	14
5 Sources of release.....	14
5.1 General.....	14
5.2 Dust containment.....	14
5.3 Identification and grading of sources of release .....	14
6 Zones .....	15
6.1 General.....	15
6.2 Extent of zones .....	15
6.2.1 General .....	15
6.2.2 Zone 20 .....	15
6.2.3 Zone 21 .....	16
6.2.4 Zone 22 .....	16
7 Dust layers .....	16
8 Documentation .....	17
8.1 General.....	17
8.2 Drawings, data sheets and tables .....	17
8.2.1 Content of documents.....	17
8.2.2 Preferred Symbol key for area classification zones .....	18
Annex A (informative) Area classification examples .....	19
A.1 Examples of zones.....	19
A.1.1 General .....	19
A.1.2 Zone 20 .....	19
A.1.3 Zone 21 .....	19
A.1.4 Zone 22 .....	19
A.2 Bag emptying station within a building and without exhaust ventilation.....	20
A.3 Bag emptying station with exhaust ventilation .....	21
A.4 Cyclone and filter with clean outlet outside building .....	21
A.5 Drum tipper within a building without exhaust ventilation.....	22
Annex B (informative) Housekeeping .....	24
B.1 Introductory remarks .....	24
B.2 Levels of housekeeping .....	24
Annex C (informative) Hybrid mixtures .....	26
C.1 General.....	26
C.2 Ventilation.....	26
C.3 Explosive limits.....	26
C.4 Chemical reactions .....	26
C.5 Minimum ignition parameters .....	26

C.6 Final classification .....	26
Bibliography.....	27
Figure 1 – Identification of zones on drawings .....	18
Figure A.1 – Bag emptying station within a building and without exhaust ventilation .....	20
Figure A.2 – Bag emptying station with exhaust ventilation .....	21
Figure A.3 – Cyclone and filter with clean outlet outside building .....	22
Figure A.4 – Drum tipper within a building without exhaust ventilation.....	23
Table 1 – Designation of zones depending on presence of dust .....	16

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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### **EXPLOSIVE ATMOSPHERES –**

### **Part 10-2: Classification of areas – Explosive dust atmospheres**

#### FOREWORD

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International Standard IEC 60079-10-2 has been prepared by subcommittee 31J: Classification of hazardous areas and installation requirements, of IEC technical committee 31: Equipment for explosive atmospheres.

This second edition of IEC 60079-10-2 cancels and replaces the first edition of IEC 60079-10-2 published in 2009. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

Explanation of the significance of the changes	Clause	Type		
		Minor and editorial changes	Extension	Major technical changes
Definition of "atmospheric conditions" deleted	3	X		
Definition of "combustible dust" aligned with other documents per recommendations of WG 28	3.4	X		
Editorial change to definition of "explosive dust atmosphere" to delete mention of flyings, since the definition of dust according to 60079-10-2 includes flyings.	3.5	X		
Definition of "combustible flyings" aligned with other documents per recommendations of WG 28	3.8	X		
Definition of "continuous formation of a dust cloud" added	3.14	X		
Definition of "catastrophic failure" added	3.20	X		
Definition of "ignition temperature of a dust layer" aligned with other documents per recommendations of WG 28 and to change reference from 61241-2-1 to 80079-20-2	3.22	X		
Definitions of "zone 20, zone 21 and zone 22" added. These were previously incorrectly included in the body of the document.	3.25.1 3.25.2 3.25.3	X		
Dust cloud density and concentration added as factors to consider for a release	4.1		X	
Wording changed to require EPL to be noted on area classification drawing	4.1		X	
Notes 1 and 3 changed to normative text	4.1		X	
Reference to published sources for dust characteristics deleted	4.2	X		
Reference to 80079-20-2 added	4.2 a)		X	
Section on competence of personnel added	4.3		X	
Note on verification dossier deleted	5.2	X		
Example added for continuous grade of release, zone information moved to Clause 6	5.3	X		
Paragraph added about dust layers being raised into a cloud	7		X	
EPLs added to list for documentation, note added warning of variability in published dust data	8.1		X	
Symbol keys are identified as preferred	8.2	X		
Note added to zone 21 and zone 22 clause about distance around source of release	Annex A	X		
Zone 22 paragraph added to this example, and figure modified to show Zone 22 location	A.2	X		
Annex B on hot surfaces deleted	Annex B in previous edition	X		
Annex D on explanation of EPLs deleted	Annex D in previous edition	X		
Annex on hybrid mixtures added	Annex C	X		

Explanation of the types of significant changes:	
<b>1. Minor and editorial changes:</b>	<ul style="list-style-type: none"> <li>– Clarification</li> <li>– Decrease of technical requirements</li> <li>– Minor technical change</li> <li>– Editorial corrections</li> </ul>
These are changes which modify requirements in an editorial or a minor technical way. They include changes of the wording to clarify technical requirements without any technical change, or a reduction in the level of existing requirement.	
<b>2. Extension:</b>	– Addition of technical options
These are changes which add new or modify existing technical requirements, in a way that new options are given, but without increasing the requirements that are fully compliant with the previous standard. Therefore, these will not have to be considered for existing area classifications in conformity with the preceding edition.	
<b>3. Major technical changes:</b>	<ul style="list-style-type: none"> <li>– Addition of technical requirements</li> <li>– Increase of technical requirements</li> </ul>
These are changes to technical requirements (addition, increase of the level or removal) made in a way that an existing area classification in conformity with the preceding edition will not always be able to fulfil the requirements given in the later edition. These changes have to be considered for existing area classifications in conformity with the preceding edition.	

The text of this standard is based on the following documents:

FDIS	Report on voting
31J/244/FDIS	31J/248/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 60079 series, under the general title *Explosive atmospheres*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

## INTRODUCTION

Dusts, as defined in this standard, are hazardous because when they are dispersed in air by any means they may form potentially explosive atmospheres. Furthermore, layers of dust may ignite and act as ignition sources for an explosive atmosphere.

This part of IEC 60079 gives guidance on the identification and classification of areas where such hazards from dust can arise. It sets out the essential criteria against which the ignition hazards can be assessed and gives guidance on the design and control parameters which can be used in order to reduce such a hazard. General and special criteria are given for the process of identification and classification of hazardous areas.

This standard contains an informative Annex A giving examples for classifying areas.

## EXPLOSIVE ATMOSPHERES –

### Part 10-2: Classification of areas – Explosive dust atmospheres

#### 1 Scope

This part of IEC 60079 is concerned with the identification and classification of areas where explosive dust atmospheres and combustible dust layers are present, in order to permit the proper assessment of ignition sources in such areas.

In this standard, explosive dust atmospheres and combustible dust layers are treated separately. In Clause 4, area classification for explosive dusts clouds is described, with dust layers acting as one of the possible sources of release. In Clause 7 other general considerations for dust layers are described.

The examples in this standard are based on a system of effective housekeeping being implemented in the plant to prevent dust layers from accumulating. Where effective housekeeping is not present, the area classification includes the possible formation of explosive dust clouds from dust layers.

The principles of this standard can also be followed when combustible fibres or flyings might cause a hazard.

This standard is intended to be applied where there can be a risk due to the presence of explosive dust atmospheres or combustible dust layers under normal atmospheric conditions (see Note 1).

NOTE 1 Atmospheric conditions include variations in pressure and temperature above and below reference levels of 101,3 kPa (1 013 mbar) and 20 °C (293 K), provided that the variations have a negligible effect on the explosive properties of the combustible materials.

It does not apply to

- underground mining areas,
- dusts of explosives that do not require atmospheric oxygen for combustion such as pyrophoric substances, propellants, pyrotechnics, munitions, peroxides, oxidizers, water-reactive elements or compounds, or other similar materials.
- catastrophic failures which are beyond the concept of abnormality dealt with in this standard,
- any risk arising from an emission of toxic gas from the dust.

This standard does not apply to where a hazard might arise due to the presence of flammable gas or vapour, but the principles may be used in the assessment of a hybrid mixture (see also IEC 60079-10-1).

NOTE 2 Additional guidance on hybrid mixtures is provided in Annex C.

This standard does not take into account the effects of consequential damage following a fire or an explosion.



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