IEC 60079-10-2

Edition 2.0 2015-01

REDLINE VERSION

colour inside

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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 29.260.20

ISBN 978-2-8322-2213-3

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

EXPLOSIVE ATMOSPHERES –

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

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60079-10-2 has been prepared by subcommittee 31J: Classification of hazardous areas and istallation 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:

		Type		
Explanation of the significance of the changes	Clause	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		

		Type		
Explanation of the significance of the changes	Clause	Minor and editorial changes	Extension	Major technical changes
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:				
1. Minor and editorial changes:	– Clarification – Decrease of technical requirements – Minor technical change – Editorial corrections			
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.				
2. Extension:	– 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.				
3. Major technical changes:	– Addition of technical requirements – Increase of technical requirements			
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.

IMPORTANT – The "colour inside" logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.

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~~, with examples,~~ for the~~ procedure used to identify and classify areas~~ process of identification and classification of hazardous areas.

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

EXPLOSIVE ATMOSPHERES –

Part 10-2: Classification of areas – ~~Combustible~~ 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, ~~the hazard of~~ other general considerations for dust layers ~~ignition~~ 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 ~~may~~ 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,

~~– areas where a risk can arise due to the presence of hybrid mixtures,~~

– dusts of explosives that do not require atmospheric oxygen for combustion~~, or to~~ 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 ~~(see Note 1)~~,

– any risk arising from an emission of ~~flammable or~~ 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.

~~NOTE 1 Catastrophic failure in this context is applied, for example, to the rupture of a storage silo or a pneumatic conveyor.~~

~~NOTE 2 In any process plant, irrespective of size, there can be numerous sources of ignition apart from those associated with equipment. Appropriate precautions will be necessary to ensure safety in this context, but these are outside the scope of this standard.~~

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.

IEC 60079-0, *Explosive atmospheres – Part 0: Equipment – General requirements*

IEC 60079-10-1, *Explosive atmospheres – Part 10-1: Classification of areas – Explosive gas atmospheres*

ISO/IEC 80079-20-2, *Explosive Atmospheres – Part 20-2: Material Characteristics – Combustible dusts test methods*[1]

[1] To be published.

IEC 60079-10-2

Edition 2.0 2015-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

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

IEC 60079-10-2:2015-01(en-fr)

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

EXPLOSIVE ATMOSPHERES –

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

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60079-10-2 has been prepared by subcommittee 31J: Classification of hazardous areas and istallation 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:

		Type		
Explanation of the significance of the changes	**Clause**	**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:	
1. Minor and editorial changes:	– Clarification – Decrease of technical requirements – Minor technical change – Editorial corrections
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.	
2. Extension:	– 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.	
3. Major technical changes:	– Addition of technical requirements – Increase of technical requirements
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.

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.

IEC 60079-0, *Explosive atmospheres – Part 0: Equipment – General requirements*

IEC 60079-10-1, *Explosive atmospheres – Part 10-1: Classification of areas – Explosive gas atmospheres*

ISO/IEC 80079-20-2, *Explosive Atmospheres – Part 20-2: Material Characteristics – Combustible dusts test methods*[1]

[1] To be published.

SOMMAIRE

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

_____

ATMOSPHÈRES EXPLOSIVES –

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

AVANT-PROPOS

1) La Commission Electrotechnique Internationale (IEC) est une organisation mondiale de normalisation composée de l'ensemble des comités électrotechniques nationaux (Comités nationaux de l'IEC). L'IEC a pour objet de favoriser la coopération internationale pour toutes les questions de normalisation dans les domaines de l'électricité et de l'électronique. A cet effet, l'IEC – entre autres activités – publie des Normes internationales, des Spécifications techniques, des Rapports techniques, des Spécifications accessibles au public (PAS) et des Guides (ci-après dénommés "Publication(s) de l'IEC"). Leur élaboration est confiée à des comités d'études, aux travaux desquels tout Comité national intéressé par le sujet traité peut participer. Les organisations internationales, gouvernementales et non gouvernementales, en liaison avec l'IEC, participent également aux travaux. L'IEC collabore étroitement avec l'Organisation Internationale de Normalisation (ISO), selon des conditions fixées par accord entre les deux organisations.
2) Les décisions ou accords officiels de l'IEC concernant les questions techniques représentent, dans la mesure du possible, un accord international sur les sujets étudiés, étant donné que les Comités nationaux de l'IEC intéressés sont représentés dans chaque comité d'études.
3) Les Publications de l'IEC se présentent sous la forme de recommandations internationales et sont agréées comme telles par les Comités nationaux de l'IEC. Tous les efforts raisonnables sont entrepris afin que l'IEC s'assure de l'exactitude du contenu technique de ses publications; l'IEC ne peut pas être tenue responsable de l'éventuelle mauvaise utilisation ou interprétation qui en est faite par un quelconque utilisateur final.
4) Dans le but d'encourager l'uniformité internationale, les Comités nationaux de l'IEC s'engagent, dans toute la mesure possible, à appliquer de façon transparente les Publications de l'IEC dans leurs publications nationales et régionales. Toutes divergences entre toutes Publications de l'IEC et toutes publications nationales ou régionales correspondantes doivent être indiquées en termes clairs dans ces dernières.
5) L'IEC elle-même ne fournit aucune attestation de conformité. Des organismes de certification indépendants fournissent des services d'évaluation de conformité et, dans certains secteurs, accèdent aux marques de conformité de l'IEC. L'IEC n'est responsable d'aucun des services effectués par les organismes de certification indépendants.
6) Tous les utilisateurs doivent s'assurer qu'ils sont en possession de la dernière édition de cette publication.
7) Aucune responsabilité ne doit être imputée à l'IEC, à ses administrateurs, employés, auxiliaires ou mandataires, y compris ses experts particuliers et les membres de ses comités d'études et des Comités nationaux de l'IEC, pour tout préjudice causé en cas de dommages corporels et matériels, ou de tout autre dommage de quelque nature que ce soit, directe ou indirecte, ou pour supporter les coûts (y compris les frais de justice) et les dépenses découlant de la publication ou de l'utilisation de cette Publication de l'IEC ou de toute autre Publication de l'IEC, ou au crédit qui lui est accordé.
8) L'attention est attirée sur les références normatives citées dans cette publication. L'utilisation de publications référencées est obligatoire pour une application correcte de la présente publication.
9) L'attention est attirée sur le fait que certains des éléments de la présente Publication de l'IEC peuvent faire l'objet de droits de brevet. L'IEC ne saurait être tenue pour responsable de ne pas avoir identifié de tels droits de brevets et de ne pas avoir signalé leur existence.

La Norme internationale IEC 60079-10-2 a été établie par le sous-comité 31J: Classification des emplacements dangereux et règles d'installation, du comité d'études 31 de l'IEC: Équipements pour atmosphères explosives.

Cette deuxième édition de l'IEC 60079-10-2 annule et remplace la première édition de l'IEC 60079-10-2 parue en 2009. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

		Type		
Explication de la signification des modifications	**Article / paragraphe**	**Modifications mineures et rédactionnelles**	**Extension**	**Modifications techniques majeures**
Définition de “conditions atmosphériques” supprimée	3	X		
Définition de “poussière combustible” alignée avec d’autres documents selon les recommandations du WG 28	3.4	X		
Modification rédactionnelle apportée à la définition de “atmosphère explosive poussiéreuse” en supprimant la mention des particules combustibles en suspension dans l’air dans la mesure où la définition de poussière conformément à 60079-10-2 inclut les particules combustibles en suspension dans l’air.	3.5	X		
Définition de “particules combustibles en suspension dans l’air” alignée avec d’autres documents selon les recommandations du WG 28	3.8	X		
Définition de “formation continue d’un nuage de poussière” ajoutée	3.14	X		
Définition de “défaillance catastrophique” ajoutée	3.20	X		
Définition de “température d’inflammation d’une couche de poussière” alignée avec d’autres documents selon les recommandations du WG 28 et remplacement de la référence à 61241-2-1 par celle à 80079-20-2	3.22	X		
Définitions de “zone 20, zone 21 et zone 22” ajoutées. Elles étaient indiquées précédemment à tort dans le corps du document.	3.25.1 3.25.2 3.25.3	X		
L’indication « densité et concentration des nuages de poussière » a été ajoutée comme facteurs à prendre en compte pour un dégagement	4.1		X	
Nouvelle formulation indiquant la nécessité de noter l’EPL sur le plan de classement des emplacements	4.1		X	
Les Notes 1 et 3 ont été modifiées en texte normatif	4.1		X	
Référence aux sources publiées relatives aux caractéristiques de la poussière supprimée	4.2	X		
Référence à 80079-20-2 ajoutée	4.2 a)		X	
Section relative à la compétence du personnel ajoutée	4.3		X	
Note relative au dossier de vérification supprimée	5.2	X		
Ajour d’un exemple de degré « dégagement continu », information de zone déplacée à l’Article 6	5.3	X		
Ajout d’un alinéa relatif à la formation d’un nuage à partir des couches de poussière	7		X	
Niveaux EPL ajoutés à la liste de la documentation, note ajoutée avertissant de la variabilité des données publiées concernant la poussière	8.1		X	
Les légendes des symboles sont identifiées comme préférentielles	8.2	X		
Note ajoutée aux articles relatifs à la zone 21 et à la zone 22 concernant la distance autour de la source de dégagement	Annexe A	X		
Ajout dans cet exemple de l’alinéa concernant la zone 22 et modification de la Figure pour indiquer l’emplacement de la Zone 22	A.2	X		

		Type		
Explication de la signification des modifications	**Article / paragraphe**	**Modifications mineures et rédactionnelles**	**Extension**	**Modifications techniques majeures**
Annexe B relative aux surfaces chaudes supprimée	Annexe B de l'édition précédente	X		
Annexe D relative à l'explication des EPL supprimée	Annexe D de l'édition précédente	X		
Annexe relative aux mélanges hybrides ajoutée	Annexe C	X		

Explication des types de modifications majeures:	
1. Modifications mineures et rédactionnelles:	– Clarification – Assouplissement des exigences techniques – Modification technique mineure – Corrections d'ordre rédactionnel
Il s'agit de modifications techniques mineures ou d'ordre rédactionnel apportées aux exigences. Elles comportent des modifications de la formulation permettant de clarifier les exigences techniques sans aucune modification technique ou d'assouplir le niveau de l'exigence existante.	
2. Extension:	– Addition d'options techniques
Il s'agit de modifications qui ajoutent de nouvelles exigences techniques ou modifient les existantes pour proposer de nouvelles options sans augmenter pour autant le niveau des exigences totalement conformes à la norme précédente. Ces modifications ne sont donc pas à prendre en compte pour les classements des emplacements existants conformes à l'édition précédente.	
3. Modifications techniques majeures:	– Addition d'exigences techniques – Augmentation du niveau des exigences techniques
Il s'agit de modifications apportées aux exigences techniques (addition, augmentation ou assouplissement du niveau) permettant d'indiquer qu'un classement des emplacements existant conforme à l'édition précédente n'est pas toujours en mesure de satisfaire aux exigences données dans la dernière édition. Ces modifications sont à prendre en compte pour les classements des emplacements existants conformes à l'édition précédente.	

Le texte de cette norme est issu des documents suivants:

FDIS	Rapport de vote
31J/244/FDIS	31J/248/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette norme.

Cette publication a été rédigée selon les Directives ISO/IEC, Partie 2.

Une liste de toutes les parties de la série IEC 60079, publiées sous le titre général A*tmosphères explosives*, peut être consultée sur le site web de l'IEC.

Le comité a décidé que le contenu de cette publication ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous "http://webstore.iec.ch" dans les données relatives à la publication recherchée. A cette date, la publication sera

- reconduite,
- supprimée,
- remplacée par une édition révisée, ou
- amendée.

INTRODUCTION

Les poussières, telles qu'elles sont définies dans la présente norme, sont dangereuses car, dispersées dans l'air d'une façon ou d'une autre, elles peuvent former des atmosphères potentiellement explosives. De plus, des couches de poussière peuvent s'enflammer et agir comme sources d'inflammation pour une atmosphère explosive.

La présente partie de l'IEC 60079 donne des lignes directrices sur l'identification et le classement des emplacements où de tels dangers d'inflammation liés aux poussières peuvent survenir. Elle établit les critères essentiels pour l'évaluation des dangers d'inflammation, ainsi que des lignes directrices portant sur les paramètres de conception et de contrôle que l'on peut utiliser pour réduire ces dangers. Des critères généraux et particuliers sont donnés pour le processus d'identification et de classement des emplacements dangereux.

La présente norme contient une Annexe A, informative, qui donne des exemples pour le classement des emplacements.

ATMOSPHÈRES EXPLOSIVES –

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

1 Domaine d'application

La présente partie de l'IEC 60079 traite de l'identification et du classement des emplacements où des atmosphères explosives poussiéreuses et des couches de poussières combustibles sont présentes, afin de permettre une évaluation appropriée des sources d'inflammation à utiliser dans de tels emplacements.

Dans la présente norme, les atmosphères explosives poussiéreuses et les couches de poussières combustibles sont traitées séparément. Le classement des emplacements de nuages de poussières explosives où les couches de poussière agissent comme l'une des sources possibles de dégagement est décrit dans l'Article 4. Une description des autres considérations d'ordre général relatives aux couches de poussière est présentée dans l'Article 7.

Les exemples donnés dans la présente norme sont basés sur un système d'entretien efficace à mettre en œuvre sur le site afin d'empêcher la formation de couches de poussière par accumulation. En l'absence d'entretien efficace, le classement des emplacements prend en compte la formation possible de nuages de poussières explosives à partir des couches de poussière.

Les principes de la présente norme peuvent également être suivis lorsque des fibres ou particules volatiles et combustibles sont une source de danger.

La présente norme est destinée à être appliquée lorsqu'il y a un risque dû à la présence d'atmosphères explosives poussiéreuses ou de couches de poussières combustibles dans des conditions atmosphériques normales (voir Note 1).

NOTE 1 Les conditions atmosphériques incluent les variations de pression et de température au-dessus et au-dessous des niveaux de référence de 101,3 kPa (1 013 mbar) et 20 °C (293 K) à condition que les variations aient un effet négligeable sur les propriétés explosives des matières combustibles.

Elle ne s'applique pas

– aux parties souterraines des mines,
– aux poussières d'explosifs dont les substances pyrophoriques de combustion telles que les gaz de propulsion, les artifices, les munitions, les peroxydes d'hydrogène, les oxydants, les éléments ou composés qui réagissent avec l'eau, ou autres matières similaires, n'exigent pas l'oxygène atmosphérique.
– aux défaillances catastrophiques, qui dépassent le concept d'anormalité traité dans la présente norme,
– à tout risque dû à l'émission de gaz toxique provenant de la poussière.

La présente norme ne s'applique pas aux emplacements où il peut exister un danger dû à la présence de gaz ou de vapeurs inflammables, mais les principes peuvent être utilisés pour l'évaluation d'un mélange hybride (voir aussi l'IEC 60079-10-1).

NOTE 2 Des lignes directrices supplémentaires sur les mélanges hybrides sont données à l'Annexe C.

La présente norme ne prend pas en compte les effets des dommages causés par un feu ou une explosion.

2 Références normatives

Les documents suivants sont cités en référence de manière normative, en intégralité ou en partie, dans le présent document et sont indispensables pour son application. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60079-0, *Atmosphères explosives – Partie 0: Matériel – Exigences générales*

IEC 60079-10-1, *Atmosphères explosives – Partie 10-1: Classement des emplacements – Atmosphères explosives gazeuses*

ISO/IEC 80079-20-2, *Atmosphères explosives – Partie 20-2: Caractéristiques des matériaux – Méthodes d'essai pour les poussières combustibles*[1]

---

1 A publier.