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INTERNATIONAL STANDARD

colour inside

Explosive atmospheres –
Part 17: Electrical installations inspection and maintenance

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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EXPLOSIVE ATMOSPHERES –

Part 17: Electrical installations inspection and maintenance

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.
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9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 60079-17:2013. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

IEC 60079-17 has been prepared by subcommittee 31J: Classification of hazardous areas and installation requirements, of IEC technical committee 31: Equipment for explosive atmospheres. It is an International Standard.

This sixth edition cancels and replaces the fifth edition published in 2013. This edition constitutes a technical revision.

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

		Type		
Changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
Simplifying description of explosive gas and dust atmospheres in the Scope and uses of these terms throughout document	1	X		
Clarifies the exclusion of ventilated rooms in the Scope	1	X		
Aligns maintenance terms and definitions in 3.7 and 3.8 with IEV & 60079.	3	X		
Introducing new clause 4.4.1.2. **Manufacturer's documentation** for cross referencing in text without repetition	4	X		
Further guidance added into Note 4 regarding factors contributing to the deterioration of Ex Equipment.	4.4.1.1.		X	
Clarifies the change in terminology from previously used **Special Condition of Safe Use** to current terminology **Specific Conditions of Use**.	4.11		X	
Further requirements added regarding Type of Protection "o".	5.7			C1
Clarification added regarding use of inspection tables	6		X	
Minor editorial changes and correction made to Tables 1 to 4 but with no change to item numbering or content	Tables 1 to 4	X		
Modified reference in this standard to align all types of inspection with Continuous Supervision terms for example; Skilled Personnel and Technical Persons with Executive Function.	Annex B			C2
A typical assessment and test report is shown in C.5.14.	Annex C	X		
Introducing new items in the Bibliography	Bibliography	X		
NOTE The technical changes referred to include the significance of technical changes in the revised IEC Standard, but they do not form an exhaustive list of all modifications from the previous version.				

Explanations:

A Definitions

Minor and editorial changes

– clarification
– decrease of technical requirements
– minor technical change
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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 level of existing requirement.

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 requirements from the previous standard.

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 overhaul or repair of product to the preceding edition will not always be able to fulfil the requirements given in the later edition. For these changes additional information is provided in clause B) below.

NOTE These changes represent current technological knowledge. However, these changes do not normally have an influence on equipment already placed on the market.

B Information about the background of 'major technical changes'

C1 Sub-clause 5.7 and Table 4 has been inserted based on text submitted by MT60079-6 *Explosive atmospheres – Part 6: Equipment protection by liquid immersion "o".*

C2 The previous reference to Responsible Person in Annex B usually reflects the roles and the responsibilities of a person rather than the technical knowledge, skills and competencies required to manage the activity of periodic inspection and maintenance of Ex equipment. The term used within the Continuous Supervision clauses of Technical Person With Executive Function provides clarity and harmonises the clauses within the document.

The text of this International Standard is based on the following documents:

Draft	Report on voting
31J/345/FDIS	31J/351/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

This International Standard is intended to be used in conjunction with IEC 60364-6.

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 document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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

INTRODUCTION

Electrical installations in hazardous areas possess features specially designed to render them suitable for operations in such atmospheres. It is essential for reasons of safety in those areas that, throughout the life of such installations, the integrity of those special features is preserved. This document provides the details for initial inspection and on-going inspections as either:

a) regular periodic inspections thereafter, or,

b) continuous supervision by Skilled Personnel.

Where necessary, maintenance ~~may~~ might also be needed.

Correct functional operation of hazardous area installations does not mean, and ~~should~~ is not to be interpreted as meaning, that the integrity of the special features referred to above are preserved.

~~Inspections are carried out in accordance with this standard, however for older installations the details for the equipment and installations requirements should be referenced to the standards applied at the date of the installation.~~

~~NOTE Standards applied at the date of installation may not have been IEC standards.~~

EXPLOSIVE ATMOSPHERES –

Part 17: Electrical installations inspection and maintenance

1 Scope

This part of IEC 60079 applies to users and covers only those factors directly related to the inspection and maintenance of electrical installations ~~within~~ specifically designed for hazardous areas ~~only~~, where the hazard ~~may be~~ is caused by ~~flammable gases, vapours, mists, dusts, fibres or flyings~~ explosive atmospheres.

It does not include:

- other fundamental installation and inspection requirements for electrical installations;
- the verification of electrical equipment;
- protection or ventilation of rooms;
- gas detection systems;
- the repair, overhaul and reclamation of explosion protected equipment (see IEC 60079-19).

While this document does not include inspection of safety devices such as used in ventilated rooms (see IEC 60079-13), it does include the requirements for inspection and maintenance of individual items of equipment that will be part of such systems, for example motors or sensors.

This document supplements the requirements for inspection and testing in non-hazardous areas in IEC 60364-6.

~~In the case of dusts, fibres or flyings the level of housekeeping may influence the inspection and maintenance requirements.~~

This document is intended to be applied where there ~~can be~~ is a risk due to the potential presence of explosive gas or dust mixtures with air or combustible dust layers under normal atmospheric conditions. It does not apply to:

- underground mining areas,
- dusts of explosives ~~that do not require atmospheric oxygen for combustion~~,
- pyrophoric substances.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60079-0, *Explosive atmospheres – Part 0: Equipment – General requirements*

~~IEC 60079-1, *Explosive atmospheres – Part 1: Equipment protection by flameproof enclosures "d"*~~

~~IEC 60079-2, *Explosive atmospheres – Part 2: Equipment protection by pressurized enclosures "p"*~~

~~IEC 60079-7, *Explosive atmospheres – Part 7: Equipment protection by increased safety "e"*~~

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

IEC 60079-10-2, *Explosive atmospheres – Part 10-2: Classification of areas –~~ Combustible~~ Explosive dust atmospheres*

~~IEC 60079-11, *Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i"*~~

IEC 60079-14, *Explosive atmospheres – Part 14: Electrical installations design, selection and erection*

IEC 60079-15, *Explosive atmospheres – Part 15: Equipment protection by type of protection "n"*

IEC 60079-19, *Explosive atmospheres – Part 19: Equipment repair, overhaul and reclamation*

~~IEC 60079-31, *Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"*~~

IEC 60364-6, *Low voltage electrical installations – Part 6: Verification*

~~IEC 61241-4, *Electrical apparatus for combustible dust atmospheres – Part 4: Type of protection "pD"*~~

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Explosive atmospheres –
Part 17: Electrical installations inspection and maintenance

Atmosphères explosives –
Partie 17 : Inspection et maintenance des installations électriques



IEC 60079-17:2023-12(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Part 17: Electrical installations inspection and maintenance

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The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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- revised.

INTRODUCTION

Electrical installations in hazardous areas possess features specially designed to render them suitable for operations in such atmospheres. It is essential for reasons of safety in those areas that, throughout the life of such installations, the integrity of those special features is preserved. This document provides the details for initial inspection and on-going inspections as either:

a) regular periodic inspections thereafter, or,

b) continuous supervision

by Skilled Personnel.

Where necessary, maintenance might also be needed.

Correct functional operation of hazardous area installations does not mean, and is not to be interpreted as meaning, that the integrity of the special features referred to above are preserved.

EXPLOSIVE ATMOSPHERES –

Part 17: Electrical installations inspection and maintenance

1 Scope

This part of IEC 60079 applies to users and covers only those factors directly related to the inspection and maintenance of electrical installations specifically designed for hazardous areas, where the hazard is caused by explosive atmospheres.

It does not include:

- other fundamental installation and inspection requirements for electrical installations;
- the verification of electrical equipment;
- protection or ventilation of rooms;
- gas detection systems;
- the repair, overhaul and reclamation of explosion protected equipment (see IEC 60079-19).

While this document does not include inspection of safety devices such as used in ventilated rooms (see IEC 60079-13), it does include the requirements for inspection and maintenance of individual items of equipment that will be part of such systems, for example motors or sensors.

This document supplements the requirements for inspection and testing in non-hazardous areas in IEC 60364-6. This document is intended to be applied where there is a risk due to the potential presence of explosive gas or dust mixtures with air or combustible dust layers under normal atmospheric conditions. It does not apply to:

- underground mining areas,
- dusts of explosives,
- pyrophoric substances.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60079-0, *Explosive atmospheres – Part 0: Equipment – General requirements*

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

IEC 60079-10-2, *Explosive atmospheres – Part 10-2: Classification of areas – Explosive dust atmospheres*

IEC 60079-14, *Explosive atmospheres – Part 14: Electrical installations design, selection and erection*

IEC 60079-15, *Explosive atmospheres – Part 15: Equipment protection by type of protection "n"*

IEC 60079-19, *Explosive atmospheres – Part 19: Equipment repair, overhaul and reclamation*

IEC 60364-6, *Low voltage electrical installations – Part 6: Verification*

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

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ATMOSPHÈRES EXPLOSIVES –

Partie 17: Inspection et maintenance des installations électriques

AVANT-PROPOS

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L'IEC 60079-17 a été établie par le sous-comité 31J: Classification des emplacements dangereux et exigences d'installation, du comité d'études 31 de l'IEC: Équipements pour atmosphères explosives. Il s'agit d'une Norme internationale.

Cette sixième édition annule et remplace la cinquième édition parue en 2013. Cette édition constitue une révision technique.

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

		Type		
Modifications	**Paragraphe**	**Modifications mineures ou rédactionnelles**	**Extension**	**Modifications techniques majeures**
Simplification de la description des atmosphères explosives de gaz et de poussières dans le domaine d'application et utilisation de ces termes dans l'ensemble du document	1	X		
Clarification de l'exclusion des salles ventilées dans le domaine d'application	1	X		
Alignement des termes et définitions de maintenance en 3.7 et 3.8 sur l'IEV et la série IEC 60079	3	X		
Ajout du nouveau paragraphe 4.4.1.2. **Documentation du fabricant** pour les références croisées dans le texte sans répétition	4	X		
Ajout de recommandations supplémentaires dans la Note 4 concernant les facteurs contribuant à la détérioration des appareils Ex	4.4.1.1.		X	
Clarification de la modification de la terminologie utilisée précédemment **Conditions particulières d'utilisation en toute sécurité** à la terminologie actuelle **Conditions particulières d'utilisation**	4.11		X	
Ajout d'exigences supplémentaires concernant le mode de protection "o"	5.7			C1
Ajout d'une clarification concernant l'utilisation des tableaux d'inspection	6		X	
Modifications rédactionnelles mineures et correction des Tableaux 1 à 4, mais sans modification de la numérotation ou du contenu des articles	Tableaux 1 à 4	X		
Modification de la référence dans la présente norme pour aligner tous les types d'inspections sur les termes relatifs à la surveillance continue, c'est-à-dire personnes qualifiées et personne avec qualification technique ayant une fonction d'encadrement	Annexe B			C2
Un exemple de rapport d'évaluation et d'essai type est fourni en C.5.14.	Annexe C	X		
Ajout de nouveaux éléments dans la Bibliographie	Bibliographie	X		
NOTE Les modifications techniques mentionnées incluent l'importance des modifications techniques apportées dans la version révisée de la norme IEC, mais il ne s'agit pas d'une liste exhaustive de toutes les modifications apportées à la version précédente.				

Explications:

A Définitions

Modifications mineures ou rédactionnelles:

– Clarification;
– réduction des exigences techniques;
– modification technique mineure;
– corrections rédactionnelles.

Ces modifications portent sur les exigences et sont de nature rédactionnelle ou technique mineure. Elles comprennent des modifications de formulation destinées à clarifier les exigences techniques sans apporter de modification technique ni réduire le niveau actuel de l'exigence.

Extension:

– ajout d'options techniques.

Ces modifications ajoutent de nouvelles exigences techniques ou modifient les exigences techniques existantes, de façon à fournir de nouvelles options, mais sans augmenter les niveaux d'exigences de la norme précédente.

Modifications techniques majeures:

– ajout d'exigences techniques;
– augmentation des exigences techniques.

Ces modifications sont apportées aux exigences techniques (ajout, augmentation du niveau ou suppression) de telle manière qu'une révision ou une réparation de produit conforme à l'édition précédente ne pourra pas toujours satisfaire aux exigences indiquées dans la dernière édition. Des informations supplémentaires relatives à ces modifications sont données à l'Article B) ci-dessous.

NOTE Ces modifications représentent les connaissances technologiques actuelles. Toutefois, elles n'ont normalement aucune influence sur les appareils déjà présents sur le marché.

B Informations sur l'origine des "modifications techniques majeures"

C1 Le paragraphe 5.7 et le Tableau 4 ont été insérés sur la base du texte soumis par la MT 60079-6 *Atmosphères explosives – Partie 6: Protection du matériel par immersion dans le liquide "o"*.

C2 La référence précédente à la personne responsable dans l'Annexe B reflète généralement les rôles et les responsabilités d'une personne plutôt que les connaissances techniques, les aptitudes et les compétences exigées pour gérer l'activité d'inspection et de maintenance périodiques de l'appareil Ex. Le terme utilisé dans les articles relatifs à la surveillance continue, à savoir Personne avec qualification technique ayant une fonction d'encadrement. est plus clair et harmonise les articles du document.

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
31J/345/FDIS	31J/351/RVD

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

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous www.iec.ch/members_experts/refdocs. Les principaux types de documents développés par l'IEC sont décrits plus en détail sous www.iec.ch/standardsdev/publications.

La présente Norme internationale est destinée à être utilisée conjointement avec l'IEC 60364-6.

Une liste de toutes les parties de la série IEC 60079, publiées sous le titre général *Atmosphères explosives*, se trouve sur le site web de l'IEC.

Le comité a décidé que le contenu de ce document ne sera pas modifié avant la date de stabilité indiquée sur le site Web de l'IEC sous webstore.iec.ch dans les données relatives au document recherché. À cette date, le document sera:

- reconduit,
- supprimé, ou
- révisé.

INTRODUCTION

Les installations électriques dans les emplacements dangereux possèdent des caractéristiques spécialement conçues pour être aptes au fonctionnement dans de telles atmosphères. Il est essentiel, pour des raisons de sécurité dans ces emplacements, que l'intégrité de ces caractéristiques soit maintenue tout au long de la vie de telles installations. Le présent document fournit les informations détaillées pour une inspection initiale et par la suite:

a) soit des inspections périodiques régulières;

b) soit une surveillance continue

par un personnel qualifié.

Si nécessaire, la maintenance peut également être nécessaire.

Le fonctionnement correct des installations dans les emplacements dangereux ne signifie pas que l'intégrité des caractéristiques spéciales auxquelles il est fait référence ci-dessus est préservée et le présent document n'est pas à interpréter en ce sens.

ATMOSPHÈRES EXPLOSIVES –

Partie 17: Inspection et maintenance des installations électriques

1 Domaine d'application

La présente partie de l'IEC 60079 s'applique aux utilisateurs et couvre uniquement les facteurs directement liés à l'inspection et à la maintenance des installations électriques spécialement conçues pour les emplacements dangereux, où le danger provient des atmosphères explosives.

Elle ne comprend pas:

- les autres exigences fondamentales relatives à l'installation et à l'inspection pour les installations électriques;
- la vérification des appareils électriques;
- la protection ou la ventilation des salles;
- les systèmes de détection de gaz;
- les réparations, les révisions et la remise en état des appareils protégés contre l'explosion (voir IEC 60079-19).

Bien que le présent document n'inclue pas l'inspection des dispositifs de sécurité tels que ceux utilisés dans les salles ventilées (voir IEC 60079-13), il inclut les exigences relatives à l'inspection et à la maintenance de chacun des éléments des appareils qui font partie de ces systèmes, par exemple les moteurs ou les capteurs.

Le présent document constitue un complément pour les exigences relatives aux inspections et aux essais de l'IEC 60364-6 effectués dans des emplacements non dangereux. Le présent document est destiné à être appliqué s'il existe un risque dû à la présence potentielle de gaz explosifs, de mélanges de poussières dans l'air ou de couches de poussières combustibles dans des conditions atmosphériques normales. Il ne s'applique pas:

- aux parties souterraines des mines;
- aux poussières d'explosifs;
- aux substances pyrophoriques.

2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. 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: Classification des emplacements – Atmosphères explosives gazeuses*

IEC 60079-10-2, *Atmosphères explosives – Partie 10-2: Classification des emplacements – Atmosphères explosives poussiéreuses*

IEC 60079-14, *Atmosphères explosives – Partie 14: Conception, sélection et construction des installations électriques*

IEC 60079-15, *Atmosphères explosives – Partie 15: Protection du matériel par mode de protection "n"*

IEC 60079-19, *Atmosphères explosives – Partie 19: Réparation, révision et remise en état de l'appareil*

IEC 60364-6, *Installations électriques à basse tension – Partie 6: Vérification*