

# INTERNATIONAL STANDARD



Explosive atmospheres – iTeh Standards  
Part 17: Electrical installations inspection and maintenance  
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## EXPLOSIVE ATMOSPHERES –

## Part 17: Electrical installations inspection and maintenance

## FOREWORD

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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:

| Changes   | Clause        | Type                        |           |                         |
|---|---------------|-----------------------------|-----------|-------------------------|
|   |               | 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 IEC 60079.   | 3             | X                           |           |                         |
| Introducing new clause 4.4.1.2. <b>Manufacturer's documentation</b> 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 <b>Special Condition of Safe Use</b> to current terminology <b>Specific Conditions of Use</b> .  | 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
- 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 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.

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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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://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](https://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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## 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.~~

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## 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"~~

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60079-0 and the following apply.

NOTE Additional definitions applicable to explosive atmospheres can be found in IEC 60050-426.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

#### 3.1

##### close inspection

inspection that encompasses those aspects covered by a visual inspection and, in addition, identifies those defects, such as loose bolts, which will be apparent only by the use of access equipment, for example steps (where necessary) and tools

Note 1 to entry: Close inspections do not normally require the enclosure to be opened, or the equipment to be de-energized.

#### 3.2

##### continuous supervision

frequent attendance, inspection, service, care and maintenance of the electrical installation by Skilled Personnel who have experience in the specific installation and its environment in order to maintain the explosion protection features of the installation in satisfactory condition

### 3.3 detailed inspection

inspection that encompasses those aspects covered by a close inspection and, in addition, identifies those defects, such as loose terminations, which will only be apparent by opening the enclosure, and/or using, where necessary, tools and test equipment

### 3.4 hazardous area

area in which an explosive atmosphere is present, or ~~may~~ can be expected to be present, in quantities such as to require special precautions for the construction, installation and use of equipment

~~Note 1 to entry:— For the purposes of this standard, an area is a three-dimensional region or space.~~

Note 1 to entry: IEC 60079-10-1, *Explosive atmospheres – Part 10-1: Classification of areas – Explosive gas atmospheres*, gives a classification of hazardous areas containing explosive gas atmospheres (see IEC 60050-426:2020, 426-03-03, 426-03-04 and 426-03-05).

Note 2 to entry: IEC 60079-10-2, *Explosive atmospheres – Part 10-2: Classification of areas – Explosive dust atmospheres*, gives a classification of hazardous areas containing explosive dust atmospheres (see IEC 60050-426:2020, 426-03-23, 426-03-24, and 426-03-25).

### 3.5 initial inspection

inspection of all electrical equipment, systems and installations before they are brought into service

### 3.6 inspection

**<for explosive atmospheres>** action comprising careful scrutiny of an item carried out either without dismantling, or with the addition of partial dismantling as required, supplemented by means such as measurement, in order to arrive at a reliable conclusion as to the condition of an item

### 3.7 live maintenance

maintenance activities carried out while the associated apparatus, intrinsically safe apparatus, and circuits are energized

[SOURCE: IEC 60050-426: 2020, 426-11-51]

### 3.8 maintenance

**<for explosive atmospheres>** combination of ~~any actions carried out to retain an item in, or restore it to, conditions in which it is able to meet the requirements of the relevant specification and perform its required functions~~ routine actions taken to preserve the fully serviceable condition of the installed apparatus

### 3.9 non-hazardous area

area in which an explosive atmosphere is not expected to be present in quantities such as to require special precautions for the construction, installation and use of equipment

### 3.10 periodic inspection

inspection of all electrical equipment, systems and installations carried out on a routine basis

### 3.11 sample inspection

inspection of a representative proportion of the electrical equipment, systems and installations