

PLAHVATUSOHTLIKUD KESKKONNAD. OSA 18:
SEADMETE KAITSE VALUMASSTÄITEGA "M"

Explosive atmospheres - Part 18: Equipment
protection by encapsulation "m"

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>See Eesti standard EVS-EN IEC 60079-18:2025 sisaldab Euroopa standardi EN IEC 60079-18:2025 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 24.10.2025.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p>	<p>This Estonian standard EVS-EN IEC 60079-18:2025 consists of the English text of the European standard EN IEC 60079-18:2025.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 24.10.2025.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
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ICS 29.260.20

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English Version

**Explosive atmospheres - Part 18: Equipment protection by encapsulation "m"
(IEC 60079-18:2025)**

Atmosphères explosives - Partie 18: Protection de l'appareil par encapsulage "m"
(IEC 60079-18:2025)

Explosionsgefährdete Bereiche - Teil 18: Geräteschutz durch Vergusskapselung "m"
(IEC 60079-18:2025)

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Comité Européen de Normalisation Electrotechnique
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European foreword

The text of document 31/1858/FDIS, future edition 5 of IEC 60079-18, prepared by TC 31 "Equipment for explosive atmospheres" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60079-18:2025.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2026-10-31 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2028-10-31 document have to be withdrawn

This document supersedes EN 60079-18:2015 and all of its amendments and corrigenda (if any).

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This document has been prepared under a standardization request addressed to CENELEC by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

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The text of the International Standard IEC 60079-18:2025 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 60079-1	NOTE	Approved as EN 60079-1
IEC 60079-2	NOTE	Approved as EN 60079-2
IEC 60079-5	NOTE	Approved as EN 60079-5
IEC 60079-6	NOTE	Approved as EN 60079-6
IEC 60079-10-1	NOTE	Approved as EN IEC 60079-10-1
IEC 60079-10-2	NOTE	Approved as EN 60079-10-2
IEC 60079-14	NOTE	Approved as EN IEC 60079-14
IEC 60079-26	NOTE	Approved as EN IEC 60079-26
IEC 60079-28	NOTE	Approved as EN 60079-28
IEC 60086-1	NOTE	Approved as EN IEC 60086-1
IEC 60622	NOTE	Approved as EN 60622

IEC 60664-1	NOTE	Approved as EN IEC 60664-1
IEC 60747-5-5	NOTE	Approved as EN IEC 60747-5-5
IEC 61951-1	NOTE	Approved as EN 61951-1
IEC 61951-2	NOTE	Approved as EN 61951-2
ISO 13849-1	NOTE	Approved as EN ISO 13849-1

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Explosive atmospheres –
Part 18: Equipment protection by encapsulation "m"**

**Atmosphères explosives –
Partie 18: Protection de l'appareil par encapsulage "m"**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

EXPLOSIVE ATMOSPHERES –

Part 18: Equipment protection by encapsulation "m"

FOREWORD

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IEC 60079-18 has been prepared by IEC technical committee 31: Equipment for explosive atmospheres. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2014 and Amendment 1:2017. This edition constitutes a technical revision.

This International Standard is to be used in conjunction with IEC 60079-0, *Explosive atmospheres – Part 0: Equipment – General requirements*.

Users of this document are advised that interpretation sheets clarifying the interpretation of this document can be published. Interpretation sheets are available from the IEC webstore and can be found in the "history" tab of the page for each document.

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
Specification has been extended for clarification. Curing conditions have been added	5.2b)			C1
Dielectric strength test according to ANSI/UL 746A has been added as alternative	5.3.2		X	
Restructure of Clause 6	6	X		
Deletion of the additional protective measures as they are given in IEC 60079-0	7.1	X		
For the Level of Protection "mc" faults need to be considered regarding the separation distances	7.2.1			C1
The NOTE was changed to an EXAMPLE for clarification of track failures	7.2.1	X		
Intermediate failure conditions for components are not considered	7.2.1	X		
Clarification made about faults	7.2.1	X		
Another possibility for the construction of transformer according to IEC 60079-7 EPL "eb" added	7.2.3		X	
Rating of component shall not be exceeded was added as clarification	7.5.1			C1
Additional enclosure changed to "arc chamber" housing	7.5.1, 7.5.2, 7.5.3	X		
Consideration of fault conditions has been added	7.5.2			C1
Additional requirements for "ma" Equipment deleted	Former 7.6.2	X		
NOTE 2 added for protection of bare live parts	7.7	X		
Note 1 and Note 2 have been changed to normative text for clarification	7.9.1	X		
Requirement regarding the thermal coupling moved from 7.9.3 to 7.9.1 as this is applicable for all temperature monitoring devices	7.9.1	X		
The surface temperature determination for EPL Da has been deleted, because this is given in IEC 60079-0	8.2.2	X		
Acceptance criteria for the Dielectric strength test aligned with the TC 31 Good Working Practice	8.2.4.2	X		

Explanation of the types of significant changes:**A) Definitions**

- 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 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 requirements for equipment that was fully compliant with the previous standard. Therefore, these will not have to be considered for products 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 a product 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 products in conformity with the preceding edition. For these changes additional information is provided in item B) below.

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

B) Information about the background of 'Major technical changes'

- C1 It is recognized that the new requirements were, in many cases, already applied. The change is to ensure that they are uniformly and consistently applied.

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

Draft	Report on voting
31/1858/FDIS	31/870/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/publications.

A list of all the parts in the IEC 60079 series, published 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.

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EXPLOSIVE ATMOSPHERES –

Part 18: Equipment protection by encapsulation "m"

1 Scope

This part of IEC 60079 gives the specific requirements for the construction, testing and marking of electrical Ex Equipment, parts of electrical Ex Equipment and Ex Components with the Type of Protection encapsulation "m" (hereinafter referred to as "m" Equipment) intended for use in explosive gas atmospheres or explosive dust atmospheres.

For Levels of Protection "mb" and "mc", this document applies where the rated voltage does not exceed 11 kV AC_{RMS} or DC.

For Level of Protection "ma", this document applies where the rated voltage does not exceed 1 kV AC_{RMS} or DC.

This document does not take account of any hazard due to an emission of flammable or toxic gas from the dust.

This document supplements and modifies the general requirements of IEC 60079-0. Where a requirement of this document conflicts with a requirement of IEC 60079-0, the requirement of this document takes precedence.

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

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

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

IEC 60127 (all parts), *Miniature fuses*

IEC 60243-1, *Electric strength of insulating materials – Test methods – Part 1: Tests at power frequencies*

IEC 60691, *Thermal-links – Requirements and application guide*

IEC 60730-2-9, *Automatic electrical controls – Part 2-9: Particular requirements for temperature sensing controls*

IEC 60738-1, *Thermistors – Directly heated positive temperature coefficient – Part 1: Generic specification*

IEC 61140, *Protection against electric shock – Common aspects for installation and equipment*

IEC 61558-1, *Safety of transformers, reactors, power supply units and combinations thereof – Part 1: General requirements and tests*

IEC 61558-2-6, *Safety of transformers, reactors, power supply units and combinations thereof – Part 2-6: Particular requirements and tests for safety isolating transformers and power supply units incorporating safety isolating transformers for general applications*

IEC 62326-4-1, *Printed boards – Part 4: Rigid multilayer printed boards with interlayer connections – Sectional specification – Section 1: Capability detail specification – Performance levels A, B and C*

ANSI/UL 248 (all parts), *Standard for low-voltage fuses*

ANSI/UL 746A, *Polymeric Materials – Short Term Property Evaluations*

ANSI/UL 796, *Printed-Wiring Boards*

IPC-A-600, *Acceptability of Printed Boards*

IPC-6012, *Qualification and Performance Specification for Rigid Printed Boards*

3 Terms and definitions

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

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

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

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

3.1

encapsulation "m"

Type of Protection whereby parts that are capable of igniting an explosive atmosphere by either sparking or heating are fully enclosed in such a way as to avoid ignition of a dust layer or explosive atmosphere under operating or installation conditions

3.2

free surface

compound surface exposed to the explosive atmospheres and/or dust layers

Note 1 to entry: Unless a compound surface is in contact with and covered by a non-metallic or metallic enclosure, the compound surface is a free surface.

3.3

switching contact

mechanical contact, designed to make and break an electrical circuit