# SLOVENSKI STANDARD
# SIST EN IEC 60079-11:2025/oprA1:2026

**01-november-2026**

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**Eksplozivne atmosfere - 11. del: Zaščita opreme z lastno varnostjo "i" - Dopolnilo 1**

Amendment 1 - Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

Explosionsgefährdete Bereiche - Teil 11: Geräteschutz durch Eigensicherheit "i"

Atmosphères explosives - Partie 11: Protection de l’appareil par sécurité intrinsèque "i"

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**Ta slovenski standard je istoveten z:** **EN IEC 60079-11:2024/prA1:2026**

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**ICS:**

| | | |
|---|---|---|
| 29.260.20 | Električni aparati za eksplozivna ozračja | Electrical apparatus for explosive atmospheres |

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# 31G/445/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

| | |
|---|---|
| PROJECT NUMBER: **IEC 60079-11/AMD1 ED7** | |
| DATE OF CIRCULATION: **2026-08-28** | CLOSING DATE FOR VOTING: **2026-11-20** |
| SUPERSEDES DOCUMENTS: **31G/423/CD, 31G/428A/CC** | |

IEC SC 31G : INTRINSICALLY-SAFE APPARATUS

| | |
|---|---|
| SECRETARIAT: United Kingdom | SECRETARY: Mr Nicholas Ludlam |
| OF INTEREST TO THE FOLLOWING COMMITTEES: TC 18, SC 31J | HORIZONTAL FUNCTION(S): |
| ASPECTS CONCERNED: Safety | |
| ☒ SUBMITTED FOR CENELEC PARALLEL VOTING | ☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING |

**Attention IEC-CENELEC parallel voting**

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

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TITLE:

**Amendment 1 – Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i"**

PROPOSED STABILITY DATE: 2030

NOTE FROM TC/SC OFFICERS:

NCs are requested to submit any comments to the SC Secretary before 2026-11-06 to enable these to be discussed at the next maintenance team meeting which is scheduled for Hamburg, DE on 2026-11-11.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# EXPLOSIVE ATMOSPHERES –

## Part 11: Equipment protection by intrinsic safety “i”

## AMENDMENT 1

## 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.
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Amendment 1 to IEC 60079-11:2023 has been prepared by subcommittee 31G: Intrinsically safe apparatus, of IEC technical committee 31: Equipment for explosive atmospheres.

The significance of changes between IEC 60079-11, Edition 7.1 (202X) and IEC 60079-11, Edition 7 (2023) are as listed below:

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| Changes | Type | | | |
|---|---|---|---|---|
| | Clause | Minor and editorial changes | Extension | Major technical changes |
| Clarification of application of the thermal ignition concept for sealed components. Additon of examples. | 5.4.1 | X | | |
| Section modified for clarification. | 5.4.3 | X | | |
| Amendment for the term for ingress protection to align with IEC 60079-0. | 6.2.2 | X | | |
| Amendment for the term for ingress protection to align with IEC 60079-0. | 6.2.3 | X | | |
| Re-organisation of this into three sections covering General, “ia” and “ib”, and “ic”. | 6.5.1 | | B3 | |
| Modification to Figure 4 Example 11 to delete the ≥X in two places. | 6.5.6.4 | X | | |
| Modification to list item a) to provide clarification for the encapsulation of fuses. | 6.6.1 | X | | |
| Correction of typographical error of the referenced clause number. | 7.4.2 | X | | |
| Rewording of the paragraph. | 7.6.1 | | B4 | |
| Modification to the footnotes of Table 16. | 7.7.2 | X | | |
| Addition of paragraph to provide clarification for the application of list items a), b) and c). | 7.7.6 | X | | |
| Modification to provide additional information on the application of digital potentiometers and similar device. | 7.7.8 | X | | |
| Modification of Table 22 to remove reference to $I_{trip}$. | 7.16.3 | X | | |
| Modification to paragraph one to remove the reference to Annex A Table A.1. Addition, after paragraph one, of two new paragraphs identifying the tests required for type 1 protection and type 2 protection. | 9.8 | X | | |
| Clarification to the requirements. | 9.14.1.4 | X | | |
| Figure D.1 modified to separately identify the measurement points for voltage at the load and at the shunt voltage limiting. | Annex D | X | | |
| Figure modified. | D.2 | | | C32 |
| Replacement of existing G.2 Non-linear sources with G.2 Assessment procedure. | Annex G | | | C33 |

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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. More guidance may be found by referring to the Redline Version of the standard.

**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



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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.

| | |
|---|---|
| **Major technical changes** | addition of technical requirements<br>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 clause 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 Changes**

B3 It is recognized that the clarified requirements in Ed. 7.0 were, in many cases, already applied. The change in Edition. 7.0 was to ensure that the requirements were uniformly and consistently applied. The extension in Amendment 1 provides further clarification and additional options.

B4 The change in 7.6.1 is an extension compared to Edition 7.0, reverting back to the method used in Edition. 6.0, because Ed. 7.0 was considered too strict (That is the matched power in any inductor that was not compliant to 7.6.2).

C32 Figure D.1 modified to separately identify the measurement points for voltage at the load and at the shunt voltage limiting.

C33 Process for linear sources is now the same as for non-linear sources to remove a misunderstanding of the use of these curves. An additional enveloping stage has been added where a safety factor of 1,5 is required as suggested by IEC 60079-25.

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

| Draft | Report on voting |
|---|---|
| 31G/XX/XXXX | 31G/XX/XXX |

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 Amendment 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/.

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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## 5.4 Thermal ignition compliance

### 5.4.1 General

*Add, at the end of 5.4.1, the following new text..*

For sealed components, except for fuses, the surface in contact with the explosive atmosphere shall be considered to be the surface of the component package. For this purpose, surfaces refer to the areas of the component that can be exposed to explosive atmosphere. This assessment should take into account whether the explosive atmosphere can penetrate the interior of components in sufficient quantities. A fault analysis in which the sealed component is destroyed in order to evaluate heat sources inside does not usually need to be assumed for thermal analysis.

EXAMPLES

Examples of sealed components are:

- a semiconductor which is fabricated into a package by the semiconductor manufacturer using moulding or an equivalent process, such that the explosive atmosphere is excluded, such as Smart outline integrated circuit (SOIC), Dual in-line package (DIP), Quad flat no-leads (QFN), Small outline transistor (SOT).
- resistors

Examples which are not normally considered as sealed components are:

- modules built from discrete components such as DC/DC converters
- relays
- transformers

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### 5.4.3 Wiring within intrinsically safe apparatus for Group I and Group II

*Replace the existing subclause 5.4.3 with the following new text and equations.*

The maximum permissible current corresponding to the maximum wire temperature due to self-heating shall either be taken from Table 3 for copper wires or can be calculated from the following equation for metals in general.

$$I = I_{\mathrm{f}} \sqrt{\frac{(t - T_{\mathrm{a}})\left(1 + \alpha_{\mathrm{a}}\left(T - T_{\mathrm{a}}\right)\right)}{(T - T_{\mathrm{a}})\left(1 + \alpha_{\mathrm{a}}\left(t - T_{\mathrm{a}}\right)\right)}}$$

where

$\alpha_{\mathrm{a}}$ is the temperature coefficient of resistance per Kelvin ($K^{-1}$) of the wire material at $T_{\mathrm{a}}$;

$I$ is the maximum permissible current RMS, in amperes;

$I_{\mathrm{f}}$ is the current, in amperes at which the wire melts in an ambient temperature $T_{\mathrm{a}}$;

$T$ is the melting temperature of the wire material in degrees Celsius (°C) (for example, 1 083 °C for copper, 1 064 °C for gold);

$T_{\mathrm{a}}$ is the maximum local temperature in the vicinity of the wire in degrees Celsius (°C); and

$t$ is the threshold temperature, in degrees Celsius (°C), for thermal ignition compliance. This is also the resultant wire temperature due to self-heating and ambient temperature.

Where the temperature coefficient of resistance of the material is specified at an ambient temperature other than $T_{\mathrm{a}}$, $\alpha_{\mathrm{a}}$ at $T_{\mathrm{a}}$ can be determined as follows:.



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