

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Explosive atmospheres –
Part 31: Equipment dust ignition protection by enclosure “t”**

**Atmosphères explosives –
Partie 31: Protection du matériel contre l’inflammation des poussières par
enveloppe «t»**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

EXPLOSIVE ATMOSPHERES –**Part 31: Equipment dust ignition protection by enclosure "t"**

FOREWORD

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

This first edition of IEC 60079-31 has been developed from the first edition of IEC 61241-1 (2004) which it now cancels and supersedes.

The significant changes with respect to the previous edition are listed below:

- Title changed to Equipment dust ignition protection by enclosure "t"
- Combination and rationalisation of practice A and B into a single practice, and some constructional requirements that may have applied to only one practice now apply to all enclosures
- Introduction of three levels of protection, "ta", "tb" and "tc"
- Defined test voltage ranges and overload conditions for thermal tests.
- Introduction of a pressure test prior to the IP test
- Restrictions on available short-circuit current level for level of protection "ta"

- Introduction of a variant of the IP6X test for level of protection “ta”
- Compulsory dust layer thermal test for protection level “ta” by surrounding the enclosure with dust to a depth of at least 500 mm on all available surfaces

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

FDIS	Report on voting
31/765/FDIS	31/775/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 maintenance result date indicated on the IEC web site 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- withdrawn,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.

The contents of the corrigendum of March 2009 have been included in this copy.

EXPLOSIVE ATMOSPHERES –

Part 31: Equipment dust ignition protection by enclosure "t"

1 Scope

This part of IEC 60079 is applicable to electrical equipment protected by enclosure and surface temperature limitation for use in explosive dust atmospheres. It specifies requirements for design, construction and testing of electrical equipment.

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

This standard does not apply to dusts of explosives, which do not require atmospheric oxygen for combustion, or to pyrophoric substances.

This standard does not apply to electrical equipment intended for use in underground parts of mines as well as those parts of surface installations of such mines endangered by firedamp and/or combustible dust.

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

NOTE 1 The application of electrical equipment in atmospheres, which may contain combustible dust as well as explosive gas, whether simultaneously or separately, may require additional protective measures.

NOTE 2 Where the equipment has to meet other environmental conditions, for example, protection against ingress of water and resistance to corrosion, additional methods of protection may be necessary. The method used should not adversely affect the integrity of the enclosure.

2 Normative references

The following referenced documents are indispensable for the application 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 60034-1, *Rotating electrical machines – Part 1: Rating and performance*

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

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

IEC 60127 series, *Miniature fuses*

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

ISO 965-1, *ISO general-purpose metric screw threads – Tolerances – Part 1: Principles and basic data*

ISO 965-3, *ISO general-purpose metric screw threads – Tolerances – Part 3: Deviation for constructional screw threads*