



SLOVENSKI STANDARD  
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Electrical apparatus for use in the presence of combustible dust -- Part 14: Selection and installation

**iTeh STANDARD PREVIEW**  
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Elektrische Betriebsmittel zur Verwendung in Bereichen mit brennbarem Staub -- Teil 14: Auswahl und Errichten

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Matériels électriques pour utilisation en présence de poussières combustibles -- Partie 14: Sélection et installation  
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Ta slovenski standard je istoveten z: EN 61241-14:2004

**ICS:**

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EUROPEAN STANDARD

**EN 61241-14**

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2004

ICS 29.260.20

English version

**Electrical apparatus for use in the presence of combustible dust**  
**Part 14: Selection and installation**  
(IEC 61241-14:2004)

Matériels électriques pour utilisation  
en présence de poussières combustibles  
Partie 14: Sélection et installation  
(CEI 61241-14:2004)

Elektrische Betriebsmittel zur Verwendung  
in Bereichen mit brennbarem Staub  
Teil 14: Auswahl und Errichten  
(IEC 61241-14:2004)

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This European Standard was approved by CENELEC on 2004-09-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## CENELEC

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

## Foreword

The text of document 31H/174/FDIS, future edition 1 of IEC 61241-14, prepared by SC 31H, Apparatus for use in the presence of combustible dust, of IEC TC 31, Electrical apparatus for explosive atmospheres, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61241-14 on 2004-09-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2005-06-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2007-09-01

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 61241-14:2004 was approved by CENELEC as a European Standard without any modification.

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In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60079-0 NOTE Harmonized as EN 60079-0:2004 (not modified)  
<https://standards.iteh.ai/catalog/standards/sist/ac746957-603e-4d3c-99a6-4c2cf3894c21/sist-en-61241-14-2005>

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## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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.

NOTE Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60364	Series	Electrical installations of buildings	HD 384	Series
IEC 60364-4-41	- 1)	Part 4-41: Protection for safety - Protection against electric shock	-	-
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + Corr. May	1991 1993
IEC 61024-1 (mod)	- 1)	Protection of structures against lightning Part 1: General principles	-	-
IEC 61024-1-1	- 1)	Protection of structures against lightning - Part 1: General principles - Section 1: Guide A: Selection of protection levels for lightning protection systems	-	-
IEC 61241-0	- 1)	Electrical apparatus for use in the presence of combustible dust Part 0: General requirements	-	-
IEC 61241-1	- 1)	Electrical apparatus for use in the presence of combustible dust Part 1: Protection by enclosures "tD"	EN 61241-1	2004 2)
IEC 61241-10	- 1)	Part 10: Classification of areas where combustible dusts are or may be present	EN 61241-10	2004 2)
IEC 61241-18	- 1)	Part 18: Protection by encapsulation "mD"	-	-
IEC 61558-1 (mod)	1997	Safety of power transformers, power supply units and similar Part 1: General requirements and tests	EN 61558-1 + A11 + Corr. April	1997 2003 2003

1) Undated reference.

2) Valid edition at date of issue.

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INTERNATIONALE  
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**61241-14**

Première édition  
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2004-07

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**Matériels électriques pour utilisation  
en présence de poussières combustibles –**

**Partie 14:  
Sélection et installation**

**iTeh STANDARD PREVIEW**

**Electrical apparatus for use in the  
presence of combustible dust –**

SIST EN 61241-14:2005

<https://standards.iteh.ai/catalog/standards/sist/ae746957-003e-4d3c-99a6-42c3894c211d/sist-en-61241-14-2005>  
**Part 14:  
Selection and installation**

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International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland  
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: [inmail@iec.ch](mailto:inmail@iec.ch) Web: [www.iec.ch](http://www.iec.ch)



Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

CODE PRIX  
PRICE CODE

**X**

*Pour prix, voir catalogue en vigueur  
For price, see current catalogue*

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICAL APPARATUS FOR USE IN THE  
PRESENCE OF COMBUSTIBLE DUST –****Part 14: Selection and installation**

## 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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International Standard IEC 61241-14 has been prepared by subcommittee 31H: Apparatus for use in the presence of combustible dust, of IEC technical committee 31: Electrical apparatus for explosive atmospheres.

This first edition of IEC 61241-14 cancels and replaces the second edition of as IEC 61241-1-2, published in 1999, and constitutes a major technical revision.

The main changes with respect to IEC 61241-1-2, are listed below:

- a) installation has changed to align with the changes to the definitions of the zones;
- b) requirements for installation of pressurization have been included;
- c) layers are no longer restricted to zone 20. Provision for the application of temperature according to layer depth is included.

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

FDIS	Report on voting
31H/174/FDIS	31H/179/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.

IEC 61241 consists of the following parts under the general title *Electrical apparatus for use in the presence of combustible dust*:

- Part 0: General requirements
- Part 1: Protection by enclosures 'tD'
- Part 2: Type of protection 'pD'
- Part 10: Classification of areas where combustible dusts are or may be present
- Part 11: Protection by intrinsic safety 'iD' <sup>1</sup>
- Part 14: Selection and installation
- Part 17: Inspection and maintenance of electrical installations in hazardous areas (other than mines) <sup>2</sup>
- Part 18: Protection by encapsulation 'mD'

NOTE All references in this standard to the IEC 61241 series follows the proposed re-numbering of the dust standards agreed by SC31H and TC31. It may be necessary to alter these numbers if the relevant standards are not yet published.

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.

<sup>1</sup> To be published.

<sup>2</sup> To be published.

Reference table

Existing standard	New number assigned	Subject	Anticipated date of change
IEC 61241-1-1	IEC 61241-0	General requirements	2004
	IEC 61241-1	Protection by enclosure	2004
IEC 61241-1-2	IEC 61241-14	Selection and installation	2004
IEC 61241-2-1	IEC 61241-20-1	Test methods	2005
IEC 61241-2-2	IEC 61241-20-2	Test methods	2005
IEC 61241-2-3	IEC 61241-20-3	Test methods	2005
IEC 61241-3	IEC 61241-10	Classification	2004
IEC 61241-4	IEC 61241-2	Protection by pressurization	2005
	IEC 61241-11	Protection by intrinsic safety	2005
	IEC 61241-17	Inspection and maintenance	2004
	IEC 61241-18	Protection by encapsulation	2004
	IEC 61241-19	Repair and overhaul	2006

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## INTRODUCTION

Many types of dust that are generated, processed, handled and stored, are combustible. When ignited they can burn rapidly and with considerable explosive force if mixed with air in the appropriate proportions. It is often necessary to use electrical apparatus in locations where such combustible materials are present, and suitable precautions must therefore be taken to ensure that all such apparatus is adequately protected so as to reduce the likelihood of ignition of the external explosive atmosphere. In electrical apparatus, potential ignition sources include electrical arcs and sparks, hot surfaces and frictional sparks.

Areas where dust, flyings and fibres in air occur in dangerous quantities are classified as hazardous and are divided into three zones according to the level of risk.

Generally, electrical safety is ensured by the implementation of one of two considerations, i.e. that electrical apparatus be located where reasonably practicable outside hazardous areas, and that electrical apparatus be designed, installed and maintained in accordance with measures recommended for the area in which the apparatus is located.

Combustible dust can be ignited by electrical apparatus in several ways:

- by surfaces of the apparatus that are above the minimum ignition temperature of the dust concerned. The temperature at which a type of dust ignites is a function of the properties of the dust, whether the dust is in a cloud or layer, the thickness of the layer and the geometry of the heat source;
- by arcing or sparking of electrical parts such as switches, contacts, commutators, brushes, or the like;
- by discharge of an accumulated electrostatic charge;
- by radiated energy (e.g. electromagnetic radiation);
- by mechanical sparking or frictional sparking associated with the apparatus.

In order to avoid ignition hazards it is necessary that:

- the temperature of surfaces on which dust can be deposited, or which would be in contact with a dust cloud, is kept below the temperature limitation specified in this standard;
- any electrical sparking parts, or parts having a temperature above the temperature limit specified in this standard
  - are contained in an enclosure which adequately prevents the ingress of dust, or
  - the energy of electrical circuits is limited so as to avoid arcs, sparks or temperatures capable of igniting combustible dust;
- any other ignition sources are avoided.

Compliance with this part of IEC 61241 will only provide the required level of safety if the electrical apparatus is operated within its rating and is installed and maintained according to the relevant codes of practice or requirements, for example in respect of protection against over-currents, internal short-circuits, and other electrical faults. In particular, it is essential that the severity and duration of an internal or external fault be limited to values that can be sustained by the electrical apparatus without damage.