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| STN | **Výbušné atmosféry. Časť 20-2: Vlastnosti látok. Skúšobné metódy na horľavé prachy (ISO/IEC 80079-20-2: 2016).** | **STN EN ISO/IEC 80079-20-2**<br><br>38 9630 |
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Explosive atmospheres - Part 20-2: Material characteristics - Combustible dusts test methods (ISO/IEC 80079-20-2:2016)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 09/16

Obsahuje: EN ISO/IEC 80079-20-2:2016, ISO/IEC 80079-20-2:2016

Oznámením tejto normy sa ruší
STN EN 61241-2-2 (33 2335) z októbra 2002

**123396**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN ISO/IEC 80079-20-2

March 2016

ICS 29.260.20

Supersedes EN 61241-2-2:1995

English Version

# Explosive atmospheres - Part 20-2: Material characteristics - Combustible dusts test methods (ISO/IEC 80079-20-2:2016)

Atmosphères explosives - Partie 20-2: Caractéristiques des produits - Méthodes d'essai des poussières combustibles (ISO/IEC 80079-20-2:2016)

Explosionsfähige Atmosphären - Teil 20-2: Werkstoffeigenschaften - Prüfverfahren für brennbare Stäube (ISO/IEC 80079-20-2:2016)

This European Standard was approved by CEN on 18 February 2016.

CEN 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 CEN-CENELEC Management Centre or to any CEN 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 CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

# Contents Page

## European foreword

This document (EN ISO/IEC 80079-20-2:2016) has been prepared by Technical Committee ISO/TMBG "Technical Management Board - groups" in collaboration with Technical Committee CEN/TC 305 “Potentially explosive atmospheres - Explosion prevention and protection” the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2016, and conflicting national standards shall be withdrawn at the latest by September 2016.

The significant changes with respect to EN 61241-2:1995 are included in Annex ZB “*Significant changes with respect to IEC 61241-2-1:1994, IEC 61241-2-2:1993 and IEC 61241-2-3:1994*".

This document supersedes EN 61241-2-2:1995.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of 2014/34/EU.

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

Extensions to the marking scheme described in the Directive are found in the ATEX Guidelines published by the European Commission. These are particularly useful for equipment that conforms to more than one category.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO/IEC 80079-20-2:2016 has been approved by CEN as EN ISO/IEC 80079-20-2:2016 without any modification.

# Annex ZA
(informative)

# Relationship between this European Standard and the Essential Requirements of EU Directive 2014/34/EU

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 2014/34/EU.

Once this standard is cited in the Official Journal of the European Union under that Directive and has been implemented as a national standard in at least one Member State, compliance with the clauses of this standard given in table ZA confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding Essential Requirements of that Directive and associated EFTA regulations.

**Table ZA.1 — Correspondence between this European Standard and Directive 2014/34/EU**

| Clause(s)/sub-clause(s) of this EN | Essential Requirements (ERs) of Directive 2014/34/EU | Qualifying remarks/Notes |
|---|---|---|
| 5, 6, Annex G | Annex II, Clause 1.01; 1.0.6a; 1.0.6b; 1.2.1; 1.2.4; 1.5.7 | |

**WARNING —** Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

# Annex ZB
(informative)

# Significant changes with respect to IEC 61241-2-1:1994, EN 61241-2-2:1993 and IEC 61241-2-3:1994

This European Standard supersedes IEC 61241-2-1:1994, EN 61241-2-2:1993 and IEC 61241-2-3:1994

**Table ZB.1 — Significant changes with respect to IEC 61241-2-1:1994, EN 61241-2-2:1993 and IEC 61241-2-3:1994**

| | | Type | | |
|---|---|---|---|---|
| **Explanation of the significance of the changes** | **Clause** | **Minor and editorial changes** | **Extension** | **Major technical changes** |
| Normative references | 2 | X | | |
| Terms and Definitions | 3 | X | | |
| Dust sample Requirements | 4 | X | | |
| Combustible Dust Determination | 5 | X | | |
| Procedure for Characterisation of combustible dust or combustible flying | 6 | X | | |
| Test methods for determination of a combustible dust or a combustible flying | 7 | X | | |
| MIT of a dust cloud | 8.1 | X | | |
| MIT of a dust layer | 8.2 | X | | |
| MIE of a dust/air mixture | 8.3 | X | | |
| Tests on resistivity | 8.4 | X | | |
| Measurement of temperature distribution on the surface of the hot plate | Annex A | X | | |
| Godbert-Greenwald oven | Annex B | X | | |
| Examples of spark-generating systems | Annex C | X | | |

**Table ZB.1** *(continued)*

| | | Type | | |
|---|---|---|---|---|
| **Explanation of the significance of the changes** | **Clause** | **Minor and editorial changes** | **Extension** | **Major technical changes** |
| Vertical tube apparatus | Annex D | X | | |
| 20-litre sphere | Annex E | X | | |
| BAM oven | Annex F | X | | |
| Data for dust explosion characteristics | Annex G | X | | |
| 1m$^3$ vessel | Annex H | X | | |

NOTE 1 The technical changes referred to include the significant technical changes from the revised EN but this is not 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

Changes in a standard classified as 'Minor and editorial changes' refer to changes regarding the previous standard, which modify requirements in an editorial or a minor technical way. Also changes of the wording to clarify technical requirements without any technical change are classified as 'Minor and editorial changes'.

A reduction in level of existing requirement is also classified as 'Minor and editorial changes'

**Extension** addition of technical options

Changes in a standard classified as 'extension' refers to changes regarding the previous standard, 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 'extensions' will not have to be considered for products in conformity with the preceding edition.

**Major technical changes** addition of technical requirements
increase of technical requirements

Changes in a standard classified as 'Major technical change' refer to changes regarding the previous standard, which add new or increase the level of existing technical requirements, in a way that a product in conformity with the preceding standard will not always be able to fulfil the requirements given in the standard. 'Major technical changes' have to be considered for products in conformity with the preceding edition. For every change classified as 'Major Technical Change' additional information is provided in clause B) of the Annex ZB.

NOTE 2 These changes represent current technological knowledge[1]. 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'**

None

[1] see also ATEX Guideline 10.3 and Annex ZA

# ISO/IEC 80079-20-2

Edition 1.0 2016-02

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

## Explosive atmospheres – Part 20-2: Material characteristics – Combustible dusts test methods

## Atmosphères explosives – Partie 20-2: Caractéristiques des produits – Méthodes d'essai des poussières combustibles

ISO/IEC 80079-20-2:2016-02(en-fr)

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# INTERNATIONAL STANDARD

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 13.230; 29.260.20

ISBN 978-2-8322-3179-1

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# EXPLOSIVE ATMOSPHERES –

# Part 20-2: Material characteristics – Combustible dusts test methods

## 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 ISO/IEC 80079-20-2 has been prepared by subcommittee 31M: Non-electrical equipment and protective systems for explosive atmospheres, of IEC 31: Equipment for explosive atmospheres.

It is published as a double logo standard.

This first edition cancels and replaces the first edition of IEC 61241-2-1 published in 1994, the first edition of IEC 61241-2-2 published in 1993 and the first edition of IEC 61241-2-3 published in 1994, combining the requirements into a single document, and is considered to constitute a technical revision.

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

| FDIS | Report on voting |
|---|---|
| 31M/102/FDIS | 31M/108/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. In ISO, the standard has been approved by 15 P-members out of 21 having cast a vote.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

"A list of all parts in the IEC 60079 series, under the general title *Explosive atmospheres*, as well as the International Standard 80079 series, can be found on the IEC website."

The committee has decided that the contents of this publication will remain unchanged until the stability 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.

**Significant changes with respect to IEC 61241-2-1:1994, IEC 61241-2-2:1993 and IEC 61241-2-3:1994**

| | | Type | | |
|---|---|---|---|---|
| **Explanation of the significance of the changes** | **Clause** | **Minor and editorial changes** | **Extension** | **Major technical changes** |
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| Dust sample Requirements | 4 | X | | |
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| Procedure for Characterisation of combustible dust or combustible flying | 6 | X | | |
| Test methods for determination of a combustible dust or a combustible flying | 7 | X | | |
| MIT of a dust cloud | 8.1 | X | | |
| MIT of a dust layer | 8.2 | X | | |
| MIE of a dust/air mixture | 8.3 | X | | |
| Tests on resistivity | 8.4 | X | | |
| Measurement of temperature distribution on the surface of the hot plate | Annex A | X | | |
| Godbert-Greenwald oven | Annex B | X | | |
| Examples of spark-generating systems | Annex C | X | | |
| Vertical tube apparatus | Annex D | X | | |
| 20-litre sphere | Annex E | X | | |
| BAM oven | Annex F | X | | |
| Data for dust explosion characteristics | Annex G | X | | |
| $1m^3$ vessel | Annex H | X | | |

# EXPLOSIVE ATMOSPHERES –

# Part 20-2: Material characteristics – Combustible dusts test methods

## 1 Scope

This part of ISO/IEC 80079 describes the test methods for the identification of combustible dust and combustible dust layers in order to permit classification of areas where such materials exist for the purpose of the proper selection and installation of electrical and mechanical equipment for use in the presence of combustible dust.

The standard atmospheric conditions for determination of characteristics of combustible dusts are:

- temperature –20 °C to +60 °C,
- pressure 80 kPa (0,8 bar) to 110 kPa (1,1 bar) and
- air with normal oxygen content, typically 21 % v/v.

The test methods defined do not apply to:

- recognized explosives, propellants (e.g. gunpowder, dynamite), or substances or mixtures of substances which may, under some circumstances, behave in a similar manner or
- dusts of explosives and propellants that do not require atmospheric oxygen for combustion, or to pyrophoric substances.

## 2 Normative references

None.