

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO/IEC 80079-20-2:2016 sisaldab Euroopa standardi EN ISO/IEC 80079-20-2:2016 ingliskeelset teksti.	This Estonian standard EVS-EN ISO/IEC 80079-20-2:2016 consists of the English text of the European standard EN ISO/IEC 80079-20-2:2016.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 30.03.2016.	Date of Availability of the European standard is 30.03.2016.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 13.230

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:

Aru 10, 10317 Tallinn, Eesti; koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Aru 10, 10317 Tallinn, Estonia; homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

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.

CEN members are the national standards bodies of 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 United Kingdom.



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

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

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**

Explanation of the significance of the changes	Clause	Type		
		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 knowledge¹. 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

CONTENTS

FOREWORD.....	5
1 Scope.....	8
2 Normative references.....	8
3 Terms and definitions	8
4 Dust sample requirements	9
4.1 Receipt of sample for testing	9
4.2 Characterisation of sample.....	9
4.3 Preparation of sample	10
4.4 Test conditions.....	10
5 Combustible dusts and combustible flyings determination.....	10
5.1 Test sequence	10
5.2 Tests to determine whether material is a combustible dust or combustible flying.....	10
5.2.1 Visual inspection.....	10
5.2.2 Determine particle distribution	11
5.2.3 Ignition test in the Hartmann tube.....	11
5.2.4 Ignition test in the 20-litre sphere	11
6 Procedure for characterisation of combustible dust or combustible flying	11
7 Test methods for determination of whether a material is a combustible dust or a combustible flying.....	14
7.1 Modified Hartmann tube	14
7.1.1 General	14
7.1.2 Test equipment.....	14
7.1.3 Test procedure.....	15
7.2 20-litre sphere.....	15
7.2.1 General	15
7.2.2 Test equipment.....	15
7.2.3 Test procedure.....	16
7.3 Alternative method to 20-litre sphere for small test material quantities.....	16
7.3.1 General	16
7.3.2 Test equipment.....	17
7.3.3 Test procedure.....	17
8 Test methods for combustible dust determinations	17
8.1 MIT of a dust cloud	17
8.1.1 General	17
8.1.2 GG furnace	17
8.1.3 BAM furnace	18
8.2 Test for MIT of dust layer	19
8.2.1 General	19
8.2.2 Heated surface	19
8.2.3 Dust layers	20
8.2.4 Dust layer temperature.....	20
8.2.5 Ambient temperature measurements	20
8.2.6 Dust layer temperature test method.....	20
8.2.7 Recording of results	21
8.3 Method for determining minimum ignition energy of dust/air mixtures	22