BS EN 60068-2-10:2005+A1:2018

BSI Standards Publication

Environmental testing

Part 2-10: Tests – Test J and guidance: Mould growth (IEC 60068-2-10:2005)

bsi.

National foreword

This British Standard is the UK implementation of EN 60068-2-10:2005+A1:2018. It is identical to IEC 60068-2-10:2005, incorporating amendment 1:2018. It supersedes BS EN 60068-2-10:2005, which will be withdrawn on 30 May 2021.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to IEC text carry the number of the IEC amendment. For example, text altered by IEC amendment A1 is indicated by ⟨A1⟩ ⟨/A1⟩.

The UK participation in its preparation was entrusted to Technical Committee GEL/104, Environmental conditions, classification and testing.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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Amendments/corrigenda issued since publication

Date	Text affected
30 September 2018	Implementation of IEC amendment 1:2018 with CENELEC endorsement A1:2018

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60068-2-10:2005 +A1

June 2018

ICS 19.040

Supersedes HD 323.2.10 S3:1988

English Version

Environmental testing Part 2-10: Tests – Test J and guidance: Mould growth (IEC 60068-2-10:2005)

Essais d'environnement Partie 2-10: Essais – Essai J et guide: Moisissures (CEI 60068-2-10:2005)

Umgebungseinflüsse Teil 2-10: Prüfverfahren – Prüfung J und Leitfaden: Schimmelwachstum (IEC 60068-2-10:2005)

This European Standard was approved by CENELEC on 2005-06-01. 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.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN 60068-2-10:2005+A1:2018: E

European Foreword

The text of document 104/365/FDIS, future edition 6 of IEC 60068-2-10, prepared by IEC TC 104, Environmental conditions, classification and methods of test, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60068-2-10 on 2005-06-01.

This European Standard supersedes HD 323.2.10 S3:1988.

The main changes with respect to HD 323.2.10 S3:1988 are:

— two test fungi replaced by two others;

— concentration of the spores defined for each test fungus;

— spores suspension in mineral salt solution additionally introduced;

— pre-conditioning of the specimens by damp heat storage prescribed;

— supersonic aerosolization of the spores suspension as the preferred inoculation method introduced;

— duration of incubation reduced from 84 days to 56 days;

— extent of mould growth grade 2 split into grade 2a and grade 2b;

— detailed information on methods of inoculation given in Annex B;

— Annex E: flow-chart deleted.

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)	2006-03-01
— latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2008-06-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60068-2-10:2005 was approved by CENELEC as a European Standard without any modification.

European foreword to amendment A1

The text of document 104/740/CDV, future edition 6 of IEC 60068-2-10:2005/A1, prepared by IEC/TC 104 "Environmental conditions, classification and methods of test" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60068-2-10:2005/A1:2018.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2019-02-28
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2021-05-30

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

Endorsement notice

The text of the International Standard IEC 60068-2-10:2005/A1:2018 was approved by CENELEC as a European Standard without any modification.

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

IEC 60068-1:2013	NOTE	Harmonized as EN 60068-1:2014 (not modified).

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.

Publication	Year	Title	EN/HD	Year
ISO/IEC 17025	1999	General requirements for the competence of testing and calibration laboratories	EN ISO/IEC 17025[1)]	2000
ISO 846	1997	Plastics - Evaluation of the action of microorganisms	EN ISO 846	1997
MIL-STD-810F	2000	Method 508.5 Fungus	—	—
WHO, ISBN 92 4 1544503	1993	Laboratory Biosafety Manual	—	—

[1)] EN ISO/IEC 17025:2000 is superseded by EN ISO/IEC 17025:2005, which is based on ISO/IEC 17025:2005.

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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 60068-2-10 has been prepared by IEC technical committee 104: Environmental conditions, classification and methods of test.

This sixth edition cancels and replaces the fifth edition published in 1988. This edition constitutes a technical revision.

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

— Two test fungi replaced by two others

— Concentration of the spores defined for each test fungus

— Spores suspension in mineral salt solution additionally introduced

— Pre-conditioning of the specimens by damp heat storage prescribed

— Supersonic aerosolization of the spores suspension as the preferred inoculation method introduced

— Duration of incubation reduced from 84 days to 56 days

— Extent of mould growth grade 2 split into grade 2a and grade 2b

— Detailed information on methods of inoculation given in Annex B

— Annex E: flow-chart deleted

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

FDIS	Report on voting
104/365/FDIS	104/373/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.

It has the status of a basic safety publication in accordance with IEC Guide 104.

This standard forms Part 2-10 of IEC 60068 which consists of the following major parts, under the general title *Environmental testing*:

Part 1: General and guidance

Part 2: Tests

Part 3: Supporting documentation and guidance

Part 4: Information for specification writers

Part 5: Guide to drafting of test methods

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.

Environmental testing —

Part 2-10:
Tests – Test J and guidance: Mould growth

1 Scope

This part of IEC 60068 provides a test method for determining the extent to which electrotechnical products support mould growth and how any mould growth may affect the performance and other relevant properties of the product.

Since mould growth conditions include high relative humidity, the test is applicable to electrotechnical products intended for transportation, storage and use under humid conditions over a period of some days at least.

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.

ISO/IEC 17025:1999, *General requirements for the competence of testing and calibration laboratories*

ISO 846:1997, *Plastics — Evaluation of the action of microorganisms*

MIL-STD-810 F:2000, *Method 508.5 Fungus*

Laboratory Biosafety Manual 2nd Ed., WHO 1993, ISBN 92 4 1544503

A1 3 General description

3.1 Background

Under certain climatic and environmental conditions, micro-organisms may settle on and colonize the surface of electrotechnical equipment. Their presence or their metabolic products may not only damage the equipment itself, but may also affect the equipment's operability and serviceability. The actions of micro-organisms on equipment are influenced by two different processes: direct action in which the deterioration of material serve as a nutritive substance for the growth of the micro-organisms and indirect action in which the metabolic products of the micro-organisms generate deterioration.

The preferred method for controlling the effects of micro-organisms is by the selection of materials that do not promote growth. Also acceptable is the treatment, or hermetic sealing, of potentially vulnerable materials and components. Additionally, equipment may not need to be evaluated if it is stored and/or operated throughout its entire life, in conditions unlikely to encourage the growth of micro-organisms. Only if these cannot be achieved is it usually necessary to demonstrate the resistance of complete or partial equipment by testing.

The test procedures and severities of this document are most commonly used to evaluate the resistance of complete or partial equipment, to the damaging effects due to the presence of micro-organisms and their metabolic products. Testing of entire equipment is usually necessary if it is critical that performance be demonstrated after exposure to adverse temperature/humidity conditions that would support the growth of micro-organisms.