SLOVENSKI STANDARD
SIST EN 61300-2-16:2007

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Optiļ ni spojni elementi in pasivne komponente ï Osnovni preskuġalni in merilni postopki ï 2-16. del: Preskuġanje ï Plesnjenje (IEC 61300-2-16:2006)

Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -- Part 2-16: Tests - Mould growth (IEC 61300-2-16:2006)

Lichtwellenleiter - Verbindungselemente und passive Bauteile - Grundlegende Prüf- und Meßverfahren -- Teil 2-16: Prüfungen: Schimmelwachstum (IEC 61300-2-16:2006)

Dispositifs d'interconnexion et composants passifs a fibres optiques - Méthodes fondamentales d'essais et de mesures -- Partie 2-16: Essais - Moisissures (IEC 61300-2-16:2006)

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Fibre optic interconnecting devices and passive components - Basic test and measurement procedures Part 2-16: Tests - Mould growth

(IEC 61300-2-16:2006)

Dispositifs d'interconnexion et composants passifs à fibres optiques - Méthodes fondamentales d'essais et de mesures Partie 2-16: Essais - Moisissures (CEI 61300-2-16:2006)

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This European Standard was approved by CENELEC on 2006-10-01. 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.

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CENELEC

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

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Foreword

The text of document 86B/2345/FDIS, future edition 2 of IEC 61300-2-16, prepared by SC 86B, Fibre optic interconnecting devices and passive components, of IEC TC 86, Fibre optics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61300-2-16 on 2006-10-01.

This European Standard supersedes EN 61300-2-16:1997.

The specific technical changes from EN 61300-2-16:1997 are as follows:

– Single Variant, Variant 1, was introduced instead of two variants, Variant 1 and 2.

– Deterioration tests were clarified.

– Detailed test procedures were introduced.

– Severity was clarified.

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)	2007-07-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2009-10-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61300-2-16:2006 was approved by CENELEC as a European Standard without any modification.

CONTENTS

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – BASIC TEST AND MEASUREMENT PROCEDURES –

Part 2-16: Tests – Mould growth

1 Scope

This part of IEC 61300, when required by the relevant specification, evaluates the ability of the materials used for passive fibre optic devices to withstand the action of fungi and bacteria and soil microorganisms likely to be encountered during usage. The type and extent of material deterioration may be determined by visual examination and/or changes in mass or any other physical property.

Since mould growth conditions include high relative humidity, the test is applicable to passive optic devices under humid operating conditions according to IEC 61753-1, in storage and/or transport.

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 60068-2-10: *Environmental testing – Part 2-10: Tests – Test J and guidance: Mould growth*

IEC 61300-1: *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 1: General and guidance*

IEC 61753-1: *Fibre optic interconnecting devices and passive components – Part 1: General and guidance for performance standard*

3 Abbreviations

For the purposes of this document, the following abbreviations apply.

ATCC: American Type Culture Collection (www.atcc.org)

4 General description

This procedure is conducted in accordance with IEC 60068-2-10, test J. This test covers the inoculation of fibre optic products with a selection of mould spores followed by a period of incubation under conditions which promote spore germination and the growth of mould.

Two variations of the test are given. Variant 1 specifies inoculation of the specimen with the mould spores without nutrients, whereas Variant 2 specifies the inoculation with the mould spores suspended in a nutritive solution which supports mould growth. For the environmental categories described in IEC 61753-1 Variant 1 shall be applied.

The deterioration of the specimen may result in swelling that would destroy functional utility, cause loss of physical strength, and cause changes in other important mechanical properties. Therefore the following deterioration tests shall be done:

a) visual examination;

b) change of mass and dimensions;

c) changes in other physical properties, i.e. material strength characteristics.

It is advisable to use testing procedures such as specified for plastics in ISO 846 to assess the vulnerability to damage by mould growth of the constructional materials used.

4.1 Health hazards to operators

The mould growth test can constitute a health hazard, unless special precautions according to IEC 60068-2-10 are taken.

4.2 Microbial strains

The fungi identified in Table 1 shall be used for performing the test and preparing the cultures.

Table 1 – Test fungi

No.	Name	Strain No.	Attacks
1	*Aspergillus niger*	ATCC 9642	Grows profusely on many materials and is resistant to copper salts
2	*Aureobasidium pullulans*	ATCC 15233	Attacks paints and lacquers
3	*Penicillium funicolosum/pinophilum*	ATCC 11797	Attacks many materials especially textiles
4	*Chaetomium globosum*	ATCC 6205	-
5	*Gliocladium virens*	ATCC 9645	-

(For purchase of a test fungus, access www.astm.org.)

5 Procedure

5.1 General

Preparation and assessment of the specimens shall be done at the standard conditions according to IEC 61300-1.

The conditions of incubation are (29 ± 1) °C and a relative humidity of >90 % and <100 %.

5.2 Test samples

Test samples shall be representative of production components/completed product.

For each test sample and method, 3 batches of specimens shall be prepared:

– control specimen stored under standard atmospheric conditions according to IEC 61300-1;
– specimens inoculated and incubated;
– sterile specimens incubated as batch 2.

For visual examination and mass and/or other physical changes determination, at least 3 specimens for each batch shall be prepared, i.e. 9 specimens each per sample and per test method.

Do not clean and label the specimen. Labelling shall be done for example by use of containers.

5.3 Test

Test specimens are exposed to test Variant 1 according to IEC 60068-2-10.

At the end of the exposure the specimens are inspected before or after cleaning according to visual examination and/or changes in mass or other physical properties.

The results are obtained by comparison of the specimens exposed to the biological attacks (batch 1) and those stored without contamination under standard (batch 2) and test (batch 3) environmental conditions.

6 Severity

The specimen shall be incubated at the chosen environmental conditions for 28 days, or longer by agreement between the customer and supplier.

7 Details to be specified

The following details shall be specified:

– specimen configuration;
– all information needed for identification of the specimen/product;
– the fungi, bacteria and soil used;
– the type of the microbicidal solution;
– the physical properties measured;
– the test methods used to measure physical properties;
– initial examinations and measurements and performance requirements;
– final examinations and measurements and performance requirements;
– deviations from test procedure;
– additional pass/fail criteria.

Bibliography

ASTM G 21: *Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi* (for purchase of the standard, access www.astm.org)

ISO 846: *Plastics – Evaluation of the action of microorganisms*