



SLOVENSKI STANDARD
oSIST prEN 13238:2018
01-december-2018

Preskusi odziva gradbenih proizvodov na ogenj - Postopki kondicioniranja in splošna pravila za izbiro podlag

Reaction to fire tests for building products - Conditioning procedures and general rules for selection of substrates

Prüfungen zum Brandverhalten von Bauprodukten - Konditionierungsverfahren und allgemeine Regeln für die Auswahl von Trägerplatten

Essais de réaction au feu des produits de construction - Modes opératoires de conditionnement et règles générales de sélection des substrats

<https://standards.iteh.ai/catalog/standards/sist/1429462a-ab6f-4295-8be2-72b9624f935c/osist-pr-en-13238-2018>

Ta slovenski standard je istoveten z: prEN 13238

ICS:

13.220.50	Požarna odpornost gradbenih materialov in elementov	Fire-resistance of building materials and elements
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oSIST prEN 13238:2018

en,fr,de

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 13238

October 2018

ICS 13.220.50

Will supersede EN 13238:2010

English Version

Reaction to fire tests for building products - Conditioning procedures and general rules for selection of substrates

Essais de réaction au feu des produits de construction -
Modes opératoires de conditionnement et règles
générales de sélection des substrats

Prüfungen zum Brandverhalten von Bauprodukten -
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die Auswahl von Trägerplatten

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 127.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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

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European foreword

This document (prEN 13238:2018) has been prepared by Technical Committee CEN/TC 127 “Fire safety in buildings”, the secretariat of which is held by BSI.

This document will supersede EN 13238:2010.

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 EU Directive(s).

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Introduction

The Construction Products Directive requires products to be tested in their end use condition which, for the purpose of substrates, could lead to an economically unrealistic large variety of tests to be carried out. This large spectrum has been reduced to a practical number of standard substrates that enables the majority of end use conditions to be represented. Rules for the selection of such substrates are given in this document.

This document is intended for use in conjunction with European Standards covering the reaction to fire test methods for the relevant construction products.

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1 Scope

This document describes the conditioning procedures for test specimens which will be tested according to the European standards for reaction to fire.

The rules for the selection of substrates for construction products when carrying out reaction to fire tests are also detailed in this document.

This document does not contain requirements for

- the pre-drying of test specimens for the non-combustibility test according EN ISO 1182;
- methods of cleaning (e.g. washing) and other methods for the assessment of durability aspects, which are dealt with in the relevant product standards.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN 312, *Particleboards - Specifications*

EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*

EN 14390, *Fire test - Large-scale room reference test for surface products*

EN 16733, *Reaction to fire tests for building products - Determination of a building product's propensity to undergo continuous smouldering*

CEN/TS 1187, *Test methods for external fire exposure to roofs*

EN ISO 1182, *Reaction to fire tests for products - Non-combustibility test (ISO 1182)*

EN ISO 1716, *Reaction to fire tests for products - Determination of the gross heat of combustion (calorific value) (ISO 1716)*

EN ISO 9239-1, *Reaction to fire tests for floorings - Part 1: Determination of the burning behaviour using a radiant heat source (ISO 9239-1)*

EN ISO 11925-2, *Reaction to fire tests - Ignitability of products subjected to direct impingement of flame - Part 2: Single-flame source test (ISO 11925-2)*

EN ISO 13943:2000, *Fire safety — Vocabulary (ISO 13943:2000)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 13943:2000 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

material

single basic substance or uniformly dispersed mixture of substances, e.g. metal, stone, timber, concrete, mineral wool with uniformly dispersed binder or polymers

3.2

product

material, element or component about which information is required

3.3

substrate

product which is used immediately beneath the product about which information is required

Note 1 to entry: For a flooring, it is the floor on which the flooring is mounted or the material which represents this floor.

3.4

standard substrate

product which is representative of the substrate used in end use applications

3.5

test specimen

piece of the product which is to be tested together with or without any substrate or treatment

Note 1 to entry: The test specimen may include an air gap.

3.6

conditioning

exposure to a controlled atmosphere

4 Conditioning procedures

4.1 General

Test specimens used by the laboratory to conduct tests according to EN ISO 1182, EN ISO 1716, EN ISO 9239-1, EN ISO 11925-2, EN 13823, EN 14390, EN 16733 and CEN/TS1187 shall be conditioned at a temperature of $(23 \pm 2)^\circ\text{C}$ and a relative humidity of $(50 \pm 5)\%$. The instrument which is used to measure the relative humidity shall have an accuracy of 5%. The accuracy of the temperature measurement shall be 1°C .

This corresponds to the recommended atmosphere and normal tolerances given in ISO 554.

The tolerances stated are on the actual measured values and shall not include the uncertainty of measurement of the instruments themselves

Test specimens shall be arranged within the conditioning environment in such a way that air can circulate around each individual test specimen.

Test specimens shall be conditioned either until constant mass is achieved (see 4.2) or for a fixed period (see 4.3).

4.2 Conditioning to constant mass

Before testing, the test specimens shall be conditioned in the atmosphere specified in 4.1 for a minimum period of 48 h, until constant mass is achieved.

Constant mass is considered to be achieved when two successive weighing operations, carried out at an interval of 24 h, do not differ by more than 0,1 % of the mass of the specimen or 0,1 g, whichever is the greater.

A number of weighing devices may be necessary. At least one weighing device shall have an accuracy of not more than 0,1 g.

4.3 Conditioning for a fixed period

Before starting conditioning for a fixed period, the test specimens shall be properly cured in accordance with manufacturer's instructions and shall not contain excess water. The content of excess water shall be measured for wood products and shall be below 40 % before the test specimens are placed in the conditioning environment.

Before testing the test specimens shall be conditioned in the atmosphere specified in 4.1 for the following minimum periods:

a) Minimum conditioning period of eight weeks:

- 1) all wood based products;
- 2) cement based products;

b) Minimum conditioning period of four weeks:

- 1) calcium silicate products;
- 2) gypsum and gypsum based products;
- 3) all other products containing hygroscopic materials;

c) Minimum conditioning period of two weeks: all other products.

5 General rules for selection of substrates

5.1 General

The substrates used by the laboratory to conduct tests according to EN ISO 9239-1, EN ISO 11925-2, EN 13823, EN 14390 and CEN/TS 1187, shall be evaluated when appropriate to determine their reaction to fire test performance and thus compliance with this standard. One indicative test shall be conducted on each batch of substrates.

Substrates shall not be jointed when used in any of the standard tests detailed above.

5.2 Standard substrates for floorings

5.2.1 Test results using a standard substrate complying with the requirements of 5.2.2 or 5.2.3 are applicable if the density of the end use substrate is at least 75 % of the nominal value of the density of that standard substrate.

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5.2.2 End use substrates of classes A1 and A2-s1,d0 are represented by fibre cement board (in accordance with ISO 390) with thickness (8 ± 2) mm, with density $(1\ 800 \pm 200)$ kg/m³ and with classification A2_n-s1, when – insofar as for the EN ISO 9239-1 test – the fibre cement board is tested as flooring but without a substrate.

5.2.3 End use substrates of wood and of classes A1 and A2-s1,d0 are represented by not fire retardant treated particleboard (in accordance with EN 312) with thickness (20 ± 2) mm, with density (680 ± 50) kg/m³ and with classification C_n-s1 when tested (according to EN ISO 9239-1) as flooring but without a substrate.

5.2.4 When the end use substrates are not of wood and not of class A1 and not of class A2-s1,d0, the flooring shall be tested in end use condition.

5.2.5 The method of attachment (e.g. adhesive) of floorings shall be representative of end use application (see NOTE).

The method of attachment in end use practice shall be reproduced in the preparation of the test specimens, i.e. end use adhesive and end use quantities, etc. If the order in which the attachments are conducted is known, this shall also be reproduced in the test specimens, e.g. if in end use practice the adhesive is applied to the substrate and not to the flooring, then it shall be applied to the substrate during the test specimen preparation. The same or greater time for curing and drying as used in end use practice shall also be allowed.

If in practice different types of adhesive are used, test specimens with each of the different adhesives shall be prepared.

Some floorings may also be tested without attachment (e.g. adhesive).

5.3 Standard substrates for construction products excluding floorings

5.3.1 A list of standard substrates is given in Table 1.

5.3.2 The choice of the substrate for the test specimens shall be made in view of the field of application of test results, taking into account the end use substrate and the following rules which apply together:

5.3.2.1 Each standard substrate represents end use substrates which have a density of at least 75 % of the nominal value of the density of that standard substrate.

5.3.2.2 Each standard substrate represents end use substrates which have a thickness either the same or greater than the nominal value of the thickness of that standard substrate.

5.3.2.3 Standard substrates of classes A1 and A2-s1,d0 represent end use substrates of classes A1 and A2-s1,d0 only.

5.3.2.4 The standard particleboard substrate and the standard plywood substrate represents end use wood based substrates and also any end use substrate of classes A1 and A2-s1,d0.

5.3.2.5 The standard gypsum plasterboard substrate is representative of end use gypsum plasterboard substrates, including those which contain reinforcement and also any end use substrate of classes A1 and A2-s1,d0.

5.3.2.6 The standard calcium silicate board substrate is not representative of a gypsum plasterboard end use substrate.

5.3.2.7 The standard steel sheet substrate is only representative of end use metal substrates with a melting point equal to or greater than 1 000 °C.