SLOVENSKI STANDARD
SIST EN 14135:2004

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Obloge - Ugotavljanje sposobnosti za požarno zaščito

Coverings - Determination of fire protection ability

Brandschutzbekleidungen - Bestimmung der Brandschutzwirkung

Revetements - Détermination de la capacité de protection contre l'incendie

Ta slovenski standard je istoveten z: **EN 14135:2004**

ICS:

13.220.50	Požarna odpornost gradbenih materialov in elementov	Fire-resistance of building materials and elements
91.060.99	Drugi stavbni elementi	Other elements of buildings

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Coverings - Determination of fire protection ability

Revêtements - Détermination de la capacité de protection contre l'incendie

Brandschutzbekleidungen - Bestimmung der Brandschutzwirkung

This European Standard was approved by CEN on 10 December 2003.

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Foreword

This document (EN 14135:2004) has been prepared by Technical Committee CEN/TC 127 “Fire safety in buildings”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by February 2005, and conflicting national standards shall be withdrawn at the latest by February 2005.

This European Standard has been prepared under a Mandate given to CEN by the Commission of the European Communities and the European Free Trade Association, and supports essential requirements of the Construction Products Directive.

Safety warning

The attention of all persons concerned with managing and carrying out this test is drawn to the fact that fire testing may be hazardous and that there is a possibility that toxic and/or harmful smoke and gases may be evolved during the test. Operational hazards may also arise during the testing of specimens and the disposal of test residues.

An assessment of all potential hazards and risks to health should be made and safety precautions should be identified and provided. Written safety instructions should be issued. Appropriate training should be given to relevant personnel. Laboratory personnel should ensure that they follow written safety instructions at all times.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: 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.

1 Scope

This document specifies a method for determining the ability of a covering to protect underlying products against damage during a specified fire exposure.

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.

EN 1363-1:1999, *Fire resistance tests — Part 1: General requirements.*

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 1363-1:1999, EN ISO 13943:2000 and the following apply.

3.1
covering
product which is intended to protect underlying products against damage during a specified fire exposure

3.2
product
material, element or component about which information is required

3.3
material
basic single substance or a uniformly dispersed mixture of substances, e.g. metal, stone, timber, concrete, mineral wool with dispersed binder, polymers

3.4
damaged material
material which has been burnt, charred, melted, shrunk or otherwise visually changed. Discoloration and soot deposits are not regarded as damage

3.5
burnt material
material which has been destroyed by combustion or pyrolysis

3.6
charred material
material which has formed carbonaceous residue resulting from pyrolysis or combustion

3.7
melted material
material which has melted under the influence of heat

3.8
shrunk material
material which has become smaller in size

3.9
substrate
product which is used beneath the product about which information is required

3.10
test specimen
covering and substrate provided for the purpose of determining the fire protection ability of the covering

4 Principle

The covering is attached to the lower side of a horizontally orientated substrate and is exposed from below in a furnace in accordance with EN 1363-1 during a specified time stipulated in advance.

The temperature rises in the test specimen are recorded. The covering is observed and the time when damage is inflicted on it is noted. After the test the damage to both the covering and the substrate is noted.

5 Test equipment

5.1 *Horizontal furnace*, capable of subjecting the test specimen from below to the heating and pressure conditions specified in EN 1363-1.

5.2 *Frame*, with wooden beams perpendicular to the longest side of the frame (see Figure 1).

5.3 *Thermocouples*, to be attached between the covering and the substrate, shall be disc thermocouples as specified in EN 1363-1. Each thermocouple junction shall be attached to the centre of the face of a copper disc 12 mm in diameter and 0,2 mm thick. The copper disc shall be directed towards the surface for which the temperature is to be measured.

6 Preparation of test specimen

6.1 The test specimen shall be rectangular with an exposed surface area of at least 6,0 m^2 and a minimum side length of 2,40 m.

6.2 Chipboard not treated with a fire retardant, with a thickness of (19 ± 2) mm, which is used as a standard substrate, shall be attached to the lower side of the wooden beams of the frame. The chipboard shall have a density of (680 ± 50) kg/m^3 at a temperature of (23 ± 2) °C and a relative humidity of (50 ± 5) %.

Low density material substrates (with a density less than 300 kg/m^3) and other specific substrates may also be used (see Clause 10).

6.3 On the lower side of the substrate a minimum of eight thermocouples shall be fixed, evenly distributed on the surface (see Figure 1).

If possible, none of these eight thermocouples shall be fixed closer than 100 mm from any joint between covering elements. Otherwise, the distance between the joints and the thermocouples shall be as large as possible. Each thermocouple shall be held in place using a mechanical fixing arrangement (e.g. staples on the wire).

6.4 If the covering consists of segments, then these shall have the same dimensions as the manufactured product, and at least three segments shall meet each other in at least one point of the test specimen. The joints shall be representative of those used in practice.

6.5 The covering shall be mounted and fixed in a manner representative of the way it is applied in practice. The edges of the covering and/or the test specimen shall not be supported in a more secure manner than in practice.

6.6 A covering with an air gap (a cavity) behind it shall be mounted with the same air gap as in practice, and – in addition to the eight thermocouples on the underside of the substrate as specified in 6.3 – eight thermocouples shall be mounted on the unexposed surface of the covering (these thermocouples shall be placed immediately below the thermocouples specified in 6.3).

6.7 The test specimen shall be verified as specified in EN 1363-1.

6.8 Prior to testing, the test specimen shall be conditioned in accordance with EN 1363-1.

NOTE Figure 1 shows an example of a test specimen with a product where in practice there are joints around the perimeter. Other products, e.g. a plaster, would not require the same position of joints.

7 Test procedure

7.1 Place the test specimen in the horizontal furnace with the covering facing downwards and exposed to the standard heating and pressure conditions specified in EN 1363-1.

7.2 There shall be at least one plate thermometer for every 1,5 m^2 of the exposed area of the test construction, subject to a minimum of four. The plate thermometers shall be oriented so that side 'A' faces the floor of the furnace.

7.3 During the test, record the temperature rises in the furnace and in the test specimen, and the pressure in the furnace and record the following observations:

- time at which cracks, or other damage, occur on the covering;
- time at which the covering burns with flames or transmits combustible gases which visibly ignite;
- time at which the covering, or parts of it, falls down or becomes loose so that the lower side of the substrate is exposed directly to the fire.

7.4 The test is terminated immediately after the specified time (the envisaged classification period).

7.5 Immediately after the test has been terminated, remove the test specimen from the furnace and extinguish any burning in the test specimen.

7.6 After the test, the following observations shall be recorded:

- damage to the covering;
- extent (areas, depths and estimated volume, as appropriate) of any damaged material within the substrate, i.e. material which has been burnt, charred, melted, shrunk or otherwise visually changed.

8 Expression of test results

8.1 The time/temperature and the time/pressure plots obtained for the furnace shall be reported.

8.2 The time/temperature plot measured with each individual thermocouple in the test specimen as well as the average curves for these measurements shall be reported.

9 Test report

The test report shall contain the following information:

a) name and address of the testing laboratory;

b) date and identification number of the report;

c) name and address of the sponsor;

d) purpose of the test;

e) method of sampling;

f) name of manufacturer or supplier of the product;

g) name or other identification marks of the product;

h) density or mass per square unit and thickness of the product;

i) date of supply of the product;

j) description of the test specimen including all materials used and including a description of how the covering is installed and attached to the substrate together with a sketch showing the dimensions of the test specimen (including any covering elements) and the location of the thermocouples for measuring the temperatures in the test specimen;

k) conditioning of the test specimen;

l) date of test;

m) reference to this document;

n) test results in accordance with 7.3, 7.6, 8.1 and 8.2;

o) any observations made during and after the test and comments on any difficulties experienced during testing.

10 Field of direct application of test results

10.1 Test results obtained with the standard substrate (see 6.2) apply for the covering

— used on substrates having a density of at least 300 kg/m^3 for a covering designated K_1 and

— used on all substrates for a covering designated K_2.

10.2 When the test has been carried out with a substrate of a low density material (a material with a density less than 300 kg/m^3) having a thickness of at least 50 mm, then the results apply to any substrate of the same type of material and having a density and/or thickness greater than that tested.

10.3 When the test is carried out with a specific substrate (i.e. a substrate not covered by 10.1 or 10.2), the test results obtained shall be valid only for the covering used on a substrate with composition identical to that used in the test.