

**Ehitustoodete ja -elementide tuleohutusalane
klassifikatsioon. Osa 1: Klassifikatsioon tuletundlikkuse
katsete alusel KONSOLIDEERITUD TEKST**

Fire classification of construction products and building
elements - Part 1: Classification using data from reaction to
fire tests CONSOLIDATED TEXT

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 13501-1:2007+A1:2009 sisaldab Euroopa standardi EN 13501-1:2007+A1:2009 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 30.10.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 16.06.2009.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 13501-1:2007+A1:2009 consists of the English text of the European standard EN 13501-1:2007+A1:2009.

This standard is ratified with the order of Estonian Centre for Standardisation dated 30.10.2009 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 16.06.2009.

The standard is available from Estonian standardisation organisation.

ICS 13.220.50

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

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

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

Right to reproduce and distribute Estonian 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 permission in writing from Estonian Centre for Standardisation.

If you have any questions about standards copyright, please contact Estonian Centre for Standardisation:
Aru str 10 Tallinn 10317 Estonia; www.evs.ee; Phone: +372 605 5050; E-mail: info@evs.ee

English Version

Fire classification of construction products and building elements
- Part 1: Classification using data from reaction to fire tests

Classement au feu des produits et éléments de
construction - Partie 1: Classement à partir des données
d'essais de réaction au feu

Klassifizierung von Bauprodukten und Bauarten zu ihrem
Brandverhalten - Teil 1: Klassifizierung mit den
Ergebnissen aus den Prüfungen zum Brandverhalten von
Bauprodukten

This European Standard was approved by CEN on 27 November 2006 and includes Amendment 1 approved by CEN on 17 July 2009.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword	5
Introduction	6
1 Scope	7
2 Normative references	7
3 Terms, definitions and symbols	7
3.1 Terms and definitions	7
3.2 Symbols and abbreviations	12
4 Classes of reaction to fire performance	13
5 Ⓐ Test methods and field of application rules Ⓐ	13
5.1 General	13
5.2 Non-combustibility test (EN ISO 1182)	13
5.3 Heat of combustion test (EN ISO 1716)	13
5.4 Single burning item test (EN 13823)	13
5.5 Ignitability test (EN ISO 11925-2)	14
5.6 Determination of the burning behaviour of floorings, using a radiant heat source (EN ISO 9239-1)	14
6 Ⓐ Principles for testing, specimen preparation and field of application Ⓐ	14
6.1 General requirements for specimen preparation	14
6.2 Specific requirements for non-combustibility and heat of combustion testing	14
6.3 Specific requirements for the single burning item test, the ignitability test and the test for the determination of the burning behaviour of floorings, using a radiant heat source	14
6.4 Ⓐ Field of application Ⓐ	15
7 Number of tests for classification	15
8 Testing of construction products, excluding floorings (see Table 1)	16
8.1 Class E	16
8.2 Classes D, C, B	17
8.3 Classes A2, A1	17
8.3.1 Homogenous products	17
8.3.2 Non-homogeneous products	17
8.3.3 Class A2 products	17
8.4 Additional classifications s1, s2, s3 for smoke production	17
8.5 Additional classifications d0, d1, d2 for flaming droplets/particles	17
9 Testing of floorings (see Table 2)	17
9.1 Class E _{fl}	17
9.2 Classes D _{fl} , C _{fl} , B _{fl}	18
9.3 Classes A2 _{fl} , A1 _{fl}	18
9.3.1 Homogeneous products	18
9.3.2 Non-homogeneous products	18
9.3.3 Class A2 _{fl} products	18
9.4 Additional classifications s1, s2 for smoke production	18
10 Testing of linear pipe thermal insulation products (see Table 3)	18
10.1 Class E _L	18
10.2 Classes D _L , C _L , B _L	18
10.3 Classes A2 _L , A1 _L	19
10.3.1 Homogenous products	19

10.3.2	Non-homogeneous products	19
10.3.3	Class A _{2L} products	19
10.4	Additional classifications s ₁ , s ₂ , s ₃ for smoke production	19
10.5	Additional classifications d ₀ , d ₁ , d ₂ for flaming droplets/particles	19
11	Classification criteria for construction products, excluding floorings (see Table 1)	19
11.1	General	19
11.2	Class F	20
11.3	Class E	20
11.4	Class D	20
11.5	Class C	20
11.6	Class B	21
11.7	Class A ₂	21
11.7.1	General	21
11.7.2	Homogeneous products	21
11.7.3	Non-homogeneous products	21
11.8	Class A ₁	22
11.8.1	Homogeneous products	22
11.8.2	Non-homogeneous products	22
11.9	Additional classifications s ₁ , s ₂ , s ₃ for smoke production	24
11.9.1	General	24
11.9.2	s ₁	24
11.9.3	s ₂	24
11.9.4	s ₃	24
11.10	Additional classifications d ₀ , d ₁ , d ₂ for flaming droplets and/or particles	24
11.10.1	Products classified A ₂ , B, C, D	24
11.10.2	Products classified E	24
12	Classification criteria for floorings (see Table 2)	25
12.1	General	25
12.2	Class F _{fl}	25
12.3	Class E _{fl}	25
12.4	Class D _{fl}	25
12.5	Class C _{fl}	26
12.6	Class B _{fl}	26
12.7	Class A _{2fl}	26
12.7.1	General	26
12.7.2	Homogeneous products	26
12.7.3	Non-homogeneous products	27
12.8	Class A _{1fl}	27
12.8.1	Homogeneous products	27
12.8.2	Non-homogeneous products	28
12.9	Additional classifications s ₁ , s ₂ for smoke production	28
12.9.1	General	28
12.9.2	s ₁	28
12.9.3	s ₂	28
13	Classification criteria for linear pipe thermal insulation products (see Table 3)	29
13.1	General	29
13.2	Class F _L	29
13.3	Class E _L	29
13.4	Class D _L	29
13.5	Class C _L	30
13.6	Class B _L	30
13.7	Class A _{2L}	30
13.7.1	General	30
13.7.2	Homogeneous products	30
13.7.3	Non-homogeneous products	31
13.8	Class A _{1L}	32
13.8.1	Homogeneous products	32
13.8.2	Non-homogeneous products	32

13.9	Additional classifications s1, s2, s3 for smoke production	33
13.9.1	General	33
13.9.2	s1	33
13.9.3	s2	33
13.9.4	s3	33
13.10	Additional classifications d0, d1, d2 for flaming droplets and/or particles	33
13.10.1	Products classified A₂_L, B_L, C_L, D_L	33
13.10.2	Products classified E_L	34
14	Presentation of classification	34
14.1	Construction products, excluding floorings and linear pipe thermal insulation products	34
14.2	Floorings	35
14.3	Linear pipe thermal insulation products	35
15	Field of application of the classification	36
16	Classification report	36
16.1	General	36
16.2	Content and format	36
Annex A	(informative) Background information for the application of the Commission Decision of 8 February 2000 implementing Council Directive 89/106/EEC as regards the classification of the reaction to fire performance of construction products	41
A.1	General	41
A.2	Assumptions	41
A.3	Reference fire situations	42
A.4	Relationship between classes and reference fire situations	44
Annex B	(normative) Reaction to fire classification report	48
Bibliography		53

Foreword

This document (EN 13501-1:2007+A1:2009) 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 March 2010, and conflicting national standards shall be withdrawn at the latest by March 2010.

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.

This document includes Amendment 1, approved by CEN on 2009-07-17.

This document supersedes A1 EN 13501-1:2007 A1.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

In addition to editorial corrections this document includes the reaction to fire classification procedure for linear pipe thermal insulation products.

A1 Amendment 1 provides for the use of extended application reports in the classification procedure. A1

CEN, CENELEC and EOTA committees preparing technical specifications, which contain performance requirements against reaction to fire tests, should make reference to the reaction to fire classification given in this European Standard and not refer directly to any specific fire test method.

EN 13501 *Fire classification of construction products and building elements* consists of the following parts:

Part 1: *Classification using data from reaction to fire tests*

Part 2: *Classification using data from fire resistance tests, excluding ventilation services*

Part 3: *Classification using data from fire resistance tests on products and elements used in building service installations: fire resisting ducts and fire dampers*

Part 4: *Classification using data from fire resistance tests on components of smoke control systems*

Part 5: *Classification using data from external fire exposure to roofs tests*

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

The aim of this European Standard is to define a harmonized procedure for the classification of reaction to fire of construction products. This classification is based on the test procedures listed in ^{A1} Clause 5 and the relevant field of application procedures ^{A1}.

This European Standard has been prepared in support of the second essential requirement in the EC Construction Products Directive (89/106/EEC) and as detailed in the Interpretative Document Number 2: Safety in case of fire (OJ C62 Vol. 37).

Background information on the Commission Decision regarding the classification of the reaction to fire performance of construction products is given in Annex A.

The European Commission has drawn up a list of products which, under specified conditions, can be considered to be class A1 without testing. This information is given in the Commission Decision 96/603/EC (OJ L 267 19.10.1966 p23) as amended by 2000/605/EC (OJ L 258 12.10.2000 p36) and 2003/424/EC (OJ L 144 12.6.2003 p9).

Additionally there is a procedure by which certain products can be assigned a particular fire classification without the need for testing. Such products have well established reaction to fire performance and have been agreed by the Standing Committee on Construction. Agreements relating to such products which may be 'classified without further testing' (CWFT) are published in the Official Journal of the EC and are listed on the Nando-CPD database on the EC website (<http://europa.eu.int/comm/enterprise/construction>).

Parts 2, 3 and 4 of this European Standard are concerned with classification resulting from fire resistance tests. Part 5 covers classification resulting from tests for external fire exposure to roofs.

^{A1} NOTE 1 ^{A1} If the classification based on the tests and criteria given in Tables 1 and 2 is not appropriate, one or more reference scenarios (representative scale tests typifying agreed hazard scenarios) can be called upon within the context of a defined procedure. This procedure is intended to be the subject of a future European Standard or Commission Decision, on the basis of an agreement between the Commission and the Member States, in consultation with CEN/CENELEC and EOTA.

^{A1} NOTE 2 Test reports constitute the basis for extended application reports as explained in prEN 15725. ^{A1}

1 Scope

This European Standard provides the reaction to fire classification procedure for all construction products, including products incorporated within building elements.

Products are considered in relation to their end use application.

This document applies to three categories, which are treated separately in this European Standard:

- construction products, excluding floorings and linear pipe thermal insulation products;
- floorings;
- linear pipe thermal insulation products.

NOTE The treatment of some families of products is still under review and can necessitate amendments to this European Standard (see European Commission Decision 2000/147/EC).

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

prEN 15725, *Extended application reports on the fire performance of construction products and building elements*

CEN/TS 15117, *Guidance on direct and extended application*

EN ISO 1182, *Reaction to fire tests for building products — Non-combustibility test (ISO 1182:2002)*

EN ISO 1716, *Reaction to fire tests for building products — Determination of the heat of combustion (ISO 1716:2002)*

EN ISO 9239-1, *Reaction to fire tests for floorings — Part 1: Determination of the burning behaviour using a radiant heat source (ISO 9239-1:2002)*

EN ISO 11925-2, *Reaction to fire tests — Ignitability of building products subjected to direct impingement of flame — Part 2: Single-flame source test (ISO 11925-2:2002)*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

NOTE Where the definitions are identical to those in EN ISO 13943, this is indicated.