

EHITUSTOODETE TULETUNDLIKKUSE KATSED.
EHITUSTOODETE, VÄLJA ARVATUD
PÕRANDAKATTEMATERJALIDE TERMILINE
MÕJUTAMINE ÜKSIKU PÕLEVA OBJEKTI POOLT

Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 13823:2020+A1:2022 sisaldab Euroopa standardi EN 13823:2020+A1:2022 ingliskeelset teksti.	This Estonian standard EVS-EN 13823:2020+A1:2022 consists of the English text of the European standard EN 13823:2020+A1:2022.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 20.07.2022.	Date of Availability of the European standard is 20.07.2022.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 13.220.50, 91.060.01, 91.100.01

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardimis- ja Akrediteerimiskeskusele. Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardimis- ja Akrediteerimiskeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardimis- ja Akrediteerimiskeskusega: Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation and Accreditation.

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation and Accreditation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation and Accreditation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

EUROPEAN STANDARD

EN 13823:2020+A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2022

ICS 13.220.50; 91.060.01; 91.100.01

Supersedes EN 13823:2020

English Version

Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item

Essais de réaction au feu des produits de construction - Produits de construction à l'exclusion des revêtements de sol exposés à une sollicitation thermique provoquée par un objet isolé en feu

Prüfungen zum Brandverhalten von Bauprodukten - Thermische Beanspruchung durch einen einzelnen brennenden Gegenstand für Bauprodukte mit Ausnahme von Bodenbelägen

This European Standard was approved by CEN on 17 February 2020 and includes Amendment 1 approved by CEN on 8 May 2022.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

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



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

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

Contents	Page
European foreword.....	4
Introduction	5
1 Scope	6
2 Normative references	6
3 Terms and definitions	6
4 Test facility	8
4.1 General.....	8
4.2 Test room.....	8
4.3 Materials.....	9
4.4 Test apparatus.....	10
4.5 Smoke exhaust system	12
4.6 General measurement section equipment.....	12
4.7 Other general equipment.....	13
5 Test specimen.....	14
5.1 Dimensions of specimen.....	14
5.2 Mounting of specimen	15
5.3 Installation of the specimen wings in the trolley	17
5.4 Number of specimens	18
6 Conditioning.....	18
7 Principle	18
8 Test procedure	19
8.1 General.....	19
8.2 Testing operations.....	19
8.3 Visual observation and manual recording of data	20
8.4 Automated recording of data.....	22
8.5 Early termination of test.....	23
9 Expression of results.....	23
10 Test report.....	24
Annex A (normative) Calculation procedures	25
A.1 General.....	25
A.2 Synchronization of data	26
A.3 Checking equipment response.....	28
A.4 Exposure period	29
A.5 Heat output.....	29
A.6 Smoke production.....	34
A.7 Calculations for calibrations – Propane heat release	39
Annex B (informative) Precision of test method.....	40
B.1 General remarks and results	40
B.2 Calculation of test results.....	41

B.3	Statistical analysis.....	41
B.4	Statistical results.....	42
	Annex C (normative) Calibration procedures.....	47
C.1	Procedures for separate pieces of equipment.....	47
C.2	System response calibrations.....	49
	Annex D (informative) Calibration procedures	59
D.1	Procedures for separate pieces of equipment.....	59
D.2	Check of the thermal attack on the specimens.....	61
	Annex E (normative) Design drawings.....	62
	Annex F (informative) Data file format.....	97
	Annex G (informative) Record sheet.....	100
	Bibliography.....	101

European foreword

This document (EN 13823:2020+A1:2022) 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 January 2023, and conflicting national standards shall be withdrawn at the latest by January 2023.

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

This document includes Amendment 1 approved by CEN on 8 May 2022.

This document supersedes A1 EN 13823:2020 A1.

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

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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

Introduction

The classification of the reaction to fire performance of construction products established by Delegated Regulation (EU) 2016/364 defines the reaction to fire classes for building products excluding floorings. The relevant test methods for determining the reaction to fire are being prepared by CEN/TC 127.

Safety warning

The attention of all persons concerned with managing and carrying out the tests described in this document is drawn to the fact that fire testing can be hazardous and that toxic and/or harmful smoke and gases can be produced during the test.

An assessment of all potential hazards and risks to health should be made and safety precautions should be identified and provided. Smoke and gases should be removed from the workplace. 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.

Special precautions are required for the propane gas supply system.

- The equipment, for example tubes, couplings, flow meters, should be approved for propane.
- The burner should be equipped with a remote-controlled ignition device, for example a pilot flame or a glow wire. There should be a warning system for leaking gas and a valve for immediate and automatic cut-off of the gas supply in case of extinction of the ignition flame. The pilot flames can be ignited directly by an operator in the test room, however, no one should be present in the test room during ignition of a burner.
- It should be possible to operate the switch between auxiliary and main (primary) burner and the preceding main valve (to open or stop the propane supply) from outside the test room.

Special precautions are required for the extinction of burning specimens.

When the extinction is carried out because of intensive combustion of the specimens, it is recommended that a second operator is ready to intervene. Means for extinguishing should be available (e.g. since the heat output during intensive combustion can damage the apparatus).

1 Scope

This document specifies a method of test for determining the reaction to fire performance of construction products excluding floorings, and excluding products which are indicated in Delegated Regulation (EU) 2016/364, when exposed to thermal attack by a single burning item (SBI). The calculation procedures are given in Annex A. Information on the precision of the test method is given in Annex B. The calibration procedures are given in Annexes C and D, of which Annex C is a normative annex.

NOTE This document has been developed to determine the reaction to fire performance of essentially flat products. The treatment of some families of products, e.g. linear products (pipes, ducts, cables etc.), can need special rules.

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 13238, *Reaction to fire tests for building products - Conditioning procedures and general rules for selection of substrates*

EN 13501-1:2018, *Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests*

EN 60584-1:2013, *Thermocouples — Part 1: EMF specifications and tolerances*

EN ISO 13943:2017, *Fire safety — Vocabulary (ISO 13943:2017)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 13943:2017 and EN 13501-1:2018 and the following apply.

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

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

3.1

backing board

calcium silicate panel used to back the specimen that can be placed directly against a free-standing test specimen or at a distance from it

3.2

specimen

piece of a product, which is to be tested

Note 1 to entry: This can include the mounting technique used in its end-use application. This also can include an air gap and/or a substrate where appropriate.