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KOMPONENTIDE KÄITUMISELE

Railway applications - Fire protection on railway
vehicles - Part 2: Requirements for fire behaviour of
materials and components

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 45545-2:2013+A1:2015 sisaldab Euroopa standardi EN 45545-2:2013+A1:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 45545-2:2013+A1:2015 consists of the English text of the European standard EN 45545-2:2013+A1:2015.
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English Version

**Railway applications - Fire protection on railway vehicles -
Part 2: Requirements for fire behaviour of materials and
components**

Applications ferroviaires - Protection contre les
incendies dans les véhicules ferroviaires - Partie 2:
Exigences du comportement au feu des matériaux et
des composants

Bahnanwendungen - Brandschutz in
Schienenfahrzeugen - Teil 2: Anforderungen an das
Brandverhalten von Materialien und Komponenten

This European Standard was approved by CEN on 7 December 2012 and includes Amendment 1 approved by CEN on 14 August 2015.

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Contents

Page

European foreword.....	5
Introduction	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	9
4 Requirements	9
4.1 Essential fire safety objectives	9
4.2 General.....	9
4.3 Grouping rules.....	11
4.3.1 General.....	11
4.3.2 Rule 1.....	11
4.3.3 Rule 2.....	11
4.3.4 Rule 3.....	11
4.4 Listed products	13
4.5 Non-listed products.....	19
4.6 Refurbishment and maintenance requirements	20
4.6.1 General.....	20
4.6.2 Requirements for refurbishment of passenger seats	20
4.7 Products to be approved on functional necessity	21
4.8 Set of material requirements.....	21
5 Test properties.....	29
5.1 Summary of test methods.....	29
5.2 Modifications on test methods used in 5.1.....	34
5.2.1 Definitions	34
5.2.2 Furnishing products burning behaviour	34
5.3 Testing rules	35
5.3.1 Products or assemblies	35
5.3.2 Hoses or Pipes	35
5.3.3 Substrates for surface products.....	36
5.3.4 Test specimen preparation for upholstery products.....	36
5.3.5 Linear cable containment products.....	36
5.3.6 Fire integrity testing	37
5.3.7 Assessment for burning droplets / particles	38
6 Evaluation of conformity	38
Annex A (normative) Standard vandalism test for seat coverings.....	39
A.1 Introduction.....	39
A.2 Apparatus.....	39
A.3 Preparation of test specimen.....	40
A.4 Test procedure	40
A.4.1 Number of tests.....	40
A.4.2 Setting up the apparatus.....	40
A.4.3 Preparing and fitting of the test specimen.....	40
A.4.4 Penetration and laceration tests	40

A.5	Results	40
A.6	Test report	41
Annex B (normative)	Fire test method for seating.....	42
B.1	General	42
B.2	Safety warning	42
B.3	Test facility.....	42
B.3.1	Hood and smoke exhaust system.....	42
B.3.2	Ignition source “EN 45545 square burner”	44
B.3.3	Other general equipment	48
B.4	Test specimens	49
B.4.1	General	49
B.4.2	Number of tests	49
B.4.3	Preparation of the test specimen.....	49
B.4.4	Conditioning of test specimen.....	50
B.5	Test procedure and application of the burner.....	50
B.6	Early termination of test	52
B.7	Test results.....	52
B.8	Test report	52
Annex C (normative)	Testing methods for determination of toxic gases from railway products.....	54
C.1	Introduction	54
C.2	Method 1 – Test apparatus.....	56
C.2.1	General	56
C.2.2	Calibration of the radiating cone	56
C.2.3	Smoke chamber – Smoke density	56
C.3	Analysis of fire effluents for Method 1	56
C.3.1	Principles of <i>FTIR</i> gas analysis used in a discontinuous way	56
C.3.2	Probe for sampling of effluents	57
C.3.3	<i>FTIR</i> gas cell	57
C.3.4	<i>FTIR</i> spectrometer.....	57
C.4	Test environment	58
C.5	Conditioning	58
C.6	Pre-test conditions for the apparatus for Method 1	58
C.7	Warnings.....	58
C.8	Smoke and gas testing using Method 1	59
C.8.1	Beginning of the test.....	59
C.8.2	Test procedure	59

C.8.3	End of test.....	60
C.8.4	Data acquisition.....	60
C.9	Data treatment.....	61
C.10	Test report for Method 1	61
C.11	Use of alternative gas analysis techniques to FTIR.....	63
C.12	Method 2 – Test apparatus.....	64
C.13	Test environment (Method 2)	64
C.14	Conditioning of samples	64
C.15	Test for gases using Method 2	64
C.16	Calculations of <i>CIT</i>	65
C.16.1	Introduction.....	65
C.16.2	General products (<i>CIT_G</i>).....	65
C.16.3	Non-listed products (<i>CIT_{NLP}</i>)	65
Annex D	(normative) Protocol for test specimen preparation in standard tests	67
D.1	Protocol for specimen preparation for tests according to EN ISO 5659-2 and ISO 5660-1	67
D.2	Protocol for specimen preparation of upholstered furniture assembled products for tests according to EN ISO 5659-2 and ISO 5660-1	67
D.2.1	Scope and field of application.....	67
D.2.2	Preparation of test specimens.....	67
D.2.2.1	General.....	67
D.2.2.2	Test specimen preparation.....	68
D.2.2.3	Reporting of Mass.....	68
D.3	Protocol for test specimen preparation for flame spread testing.....	68
D.3.1	Scope and field of application.....	68
D.3.2	Test specimen preparation.....	68
Annex ZA	(informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2008/57/EC	70
Bibliography		73

European foreword

This document (EN 45545-2:2013+A1:2015) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

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 April 2016, and conflicting national standards shall be withdrawn at the latest by April 2016.

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 2015-08-14.

This document supersedes A1 EN 45545-2:2013 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 mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2008/57/EC.

For relationship with EU Directive 2008/57/EC, see informative Annex ZA, which is an integral part of this document.

This series of European standards *Railway applications — Fire protection on railway vehicles* consists of:

- Part 1: General;
- Part 2: Requirements for fire behaviour of materials and components;
- Part 3: Fire resistance requirements for fire barriers;
- Part 4: Fire safety requirements for railway rolling stock design;
- Part 5: Fire safety requirements for electrical equipment including that of trolley buses, track guided buses and magnetic levitation vehicles;
- Part 6: Fire control and management systems;
- Part 7: Fire safety requirements for flammable liquid and flammable gas installations.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

EN 45545-2 has been developed from existing fire safety regulations for railway vehicles from the International Union of Railways (UIC) and different European countries.

In using the operation and design categories defined in EN 45545-1, the requirements laid down in this part take into account the current operating conditions for European public rail transport.

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1 Scope

This part of EN 45545 specifies the reaction to fire performance requirements for materials and products used on railway vehicles as defined in EN 45545-1.

The operation and design categories defined in EN 45545-1 are used to establish hazard levels that are used as the basis of a classification system.

For each hazard level, this part specifies the test methods, test conditions and reaction to fire performance requirements.

It is not within the scope of this European Standard to describe measures that ensure the preservation of the vehicles in the event of a fire.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 45545-1:2013, *Railway applications — Fire protection on railway vehicles — Part 1: General*

EN 45545-3, *Railway applications — Fire protection on railway vehicles — Part 3: Fire resistance requirements for fire barriers*

EN 45545-5:2013+A1:2015, *Railway applications — Fire protection on railway vehicles — Part 5: Fire safety requirements for electrical equipment including that of trolley buses, track guided buses and magnetic levitation vehicles*

EN 50305:2002, *Railway applications — Railway rolling stock cables having special fire performance — Test methods*

EN 50306, *Railway applications — Railway rolling stock cables having special fire performance*

EN 50264, *Railway applications — Railway rolling stock power and control cables having special fire performance*

EN 50382, *Railway applications — Railway rolling stock high temperature power cables having special fire performance*

EN 60332-1-2, *Tests on electric and optical fibre cables under fire conditions — Part 1-2: Test for vertical flame propagation for a single insulated wire or cable — Procedure for 1 kW pre-mixed flame*

EN 60332-3-24, *Tests on electric and optical fibre cables under fire conditions — Part 3-24: Test for vertical flame spread of vertically-mounted bunched wires or cables — Category C*

EN 60584-1, *Thermocouples — Part 1: Reference tables*

EN 60695-2-11, *Fire hazard testing — Part 2-11: Glowing/hot-wire based test methods — Glow-wire flammability test method for end-products*

EN 60695-11-10, *Fire hazard testing — Part 11-10: Test flames — 50 W horizontal and vertical flame test methods*

EN 61034-1, *Measurement of smoke density of cables burning under defined conditions — Part 1: Test apparatus*

EN 61034-2, *Measurement of smoke density of cables burning under defined conditions — Part 2: Test procedure and requirements*

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

EN ISO 1716:2010, *Reaction to fire tests for products — Determination of the gross heat of combustion (calorific value) (ISO 1716:2010)*

EN ISO 4589-2, *Plastics — Determination of burning behaviour by oxygen index — Part 2: Ambient-temperature test (ISO 4589-2)*

EN ISO 5659-2, *Plastics — Smoke generation — Part 2: Determination of optical density by a single-chamber test (ISO 5659-2)*

EN ISO 6507-3, *Metallic materials — Vickers hardness test — Part 3: Calibration of reference blocks (ISO 6507-3)*

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 12952-2, *Textiles — Assessment of the ignitability of bedding items — Part 2: Ignition source: match-flame equivalent (ISO 12952-2)*

ISO 5658-2:2006, *Reaction to fire tests — Spread of flame — Part 2: Lateral spread on building and transport products in vertical configuration*

ISO 5660-1, *Reaction-to-fire tests — Heat release, smoke production and mass loss rate — Part 1: Heat release rate (cone calorimeter method)*

ISO/TR 9705-2, *Reaction-to-fire tests — Full-scale room tests for surface products — Part 2: Technical background and guidance*

ISO 11054, *Cutting tools — Designation of high-speed steel groups*

ISO 19702, *Toxicity testing of fire effluents — Guidance for analysis of gases and vapours in fire effluents using FTIR gas analysis*

ISO 2592, *Determination of flash and fire points — Cleveland open cup method*

ISO 2719, *Determination of flash point — Pensky-Martens closed cup method*

NF X70-100-1, *Fire tests — Analysis of gaseous effluents — Part 1: methods for analysing gases stemming from thermal degradation*

NF X70-100-2, *Fire tests — Analysis of gaseous effluents — Part 2: tubular furnace thermal degradation method*