



# SLOVENSKI STANDARD

## SIST-TS CEN/TS 45545-6:2009

01-april-2009

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### Železniške naprave - Požarna zaščita na železniških vozilih - 6. del: Obvladovanje požara in sistemi upravljanja

Railway applications - Fire protection on railway vehicles - Part 6: Fire control and management systems

Bahnanwendungen - Brandschutz in Schienenfahrzeugen - Teil 6: Brandmelde- und Brandbekämpfungseinrichtungen und begleitende Brandschutzmaßnahmen

Applications ferroviaires - Protection contre les incendies dans les véhicules ferroviaires - Partie 6: Systèmes de gestion et de contrôle des incendies

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Ta slovenski standard je istoveten z: **CEN/TS 45545-6:2009**

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#### **ICS:**

13.220.20	Požarna zaščita	Fire protection
45.060.01	Železniška vozila na splošno	Railway rolling stock in general

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TECHNICAL SPECIFICATION  
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**CEN/TS 45545-6**

January 2009

ICS 13.220.20; 45.060.01

English version

**Railway applications - Fire protection on railway vehicles - Part  
6: Fire control and management systems**

Applications ferroviaires - Protection contre les incendies  
dans les véhicules ferroviaires - Partie 6: Systèmes de  
gestion et de contrôle des incendies

Bahnanwendungen - Brandschutz in Schienenfahrzeugen -  
Teil 6: Brandmelde- und Brandbekämpfungseinrichtungen  
und begleitende Brandschutzmaßnahmen

This Technical Specification (CEN/TS) was approved by CEN on 8 June 2008 for provisional application.

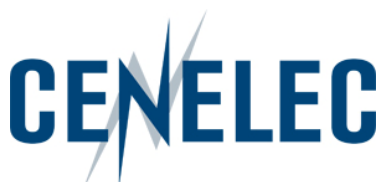
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## Foreword

This document (CEN/TS 45545-6:2009) has been prepared by Technical Committee CEN/TC 256 "Railway applications", the secretariat of which is held by DIN.

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 has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directive(s).

For relationship with EC Directive(s), see informative Annex ZA, which is an integral part of this document.

This series of Technical Specifications *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 announce this Technical Specification: 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 the United Kingdom.

## Introduction

This part is based on 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 CEN/TS 45545-1, the requirements laid down in this part take into account the current operating conditions for European public rail transport.

## 1 Scope

This part specifies requirements for fire detection, alarm systems, equipment shutdown, information and communication systems, emergency lighting, emergency brake systems and fire fighting systems to cover the objectives defined in CEN/TS 45545-1.

The measures and requirements specified in this Technical Specification aim to protect passengers and staff in railway vehicles in the event of a fire on board by alerting staff and passengers to a fire, delaying the fire development and controlling the movement of smoke.

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

This part is valid for railway vehicles defined in CEN/TS 45545-1.

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## 2 Normative references

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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 2, *Classification of fires*

EN 3-7, *Portable fire extinguishers — Part 7: Characteristics, performance requirements and test methods*

EN 1869, *Fire blankets*

EN 13272, *Railway applications — Electrical lighting for rolling stock in public transport systems*

EN 61310-1, *Safety of machinery — Indication, marking and actuation — Part 1: Requirements for visual, auditory and tactile signals (IEC 61310-1:1995)*

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

CEN/TS 45545-1:2009, *Railway applications — Fire protection of railway vehicles — Part 1: General*

### 3 Terms and definitions

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

#### 3.1

##### **detection system**

system which responds to one or more of the products of fire

#### 3.2

##### **public address system**

system which supplies audible language based information to passengers

#### 3.3

##### **alarm**

audible and/or visual indication to staff and/or passengers of the detection of fire

##### 3.3.1

##### **local alarm**

alarm that gives warning solely in the area where fire products are detected

##### 3.3.2

##### **remote alarm**

alarm that gives warning in areas other than where fire products are detected

#### 3.4

##### **alert system**

system that informs on board staff and/or control centre staff about a possible fire detected by passenger

#### 3.5

##### **fire fighting equipment**

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- a) fixed equipment which delivers a fire extinguishing medium when either manually or automatically activated;
- b) portable or mobile equipment which delivers a fire extinguishing medium under manual control

#### 3.6

##### **recirculation mode**

operation condition of a ventilation system in which the external fresh air inlets are closed and air circulates only within a specified area

#### 3.7

##### **fire barrier door**

door which ensures specified fire resistance characteristics to contain fire and its effluents

#### 3.8

##### **automatic public address system**

equipment that makes a pre-recorded announcement on detection of a fire

#### 3.9

##### **technical cabinet**

cabinet containing mechanical and / or electrical equipment which is normally not occupied during operation and which can generate fire resulting from technical defects according to CEN/TS 45545-1:2009, 4.3

**CEN/TS 45545-6:2009 (E)****4 General requirements**

The design, construction or assembly of components which are critical for fire safety, e.g. for fire detection and for fire fighting shall comply with the objectives in CEN/TS 45545-1.

All passenger vehicles shall be fitted with a passenger operable alert system to inform on-board staff and/or control centre staff about a possible fire detected by a passenger.

All passenger vehicles shall have an emergency lighting system implemented, which has sufficient light intensity and duration for evacuation of the vehicles, in accordance with EN 13272.

All passenger vehicles shall be equipped with a public address system that provides a means of conveying information to passengers from on-board staff or control centre staff.

Fire barrier doors for passenger use shall be of the self-closing type. Powered fire barrier doors for passenger use shall stop in a fully closed position as a result of the impact of fire.

Emergency signs shall be positioned adjacent to all emergency alert activation devices, emergency exits and emergency equipment (e.g. fire extinguishers and emergency hammers). Signs shall be permanent and readily visible under emergency lighting conditions. The design, colour and size of the emergency signs shall be based on EN 61310-1.

**5 Requirements for systems used in automatically initiated processes****5.1 General**

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When applicable, the process steps are automatic detection, leading to alarm and leading to action.

**5.2 Fire detection**

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Fire detection systems shall be reliable and shall activate consistently in all modes of service. They shall monitor the areas or equipment defined in Table 1. Fire detection systems shall be functionally suitable for the expected fire products, e.g. flames, smoke, heat.

The following points shall be taken into consideration for the verification of functionality:

- 1) origin of fire;
- 2) size of fire;
- 3) material involved in fire;
- 4) nature of detector;
- 5) air flow.



Table 1 — Fire detection (figures in the table are operation categories in accordance with CEN/TS 45545-1)

	Passenger areas	Sleeper compartment	Toilets	Staff areas	Cooking or catering area	Technical cabinets	HVAC unit	Combustion engines under the car	Electric traction equipment under the car	Combustion engines inside the car	Electric traction equipment inside the car	Engine compartment on locomotives	Luggage compartment
Design Categories N and D	1 2 3 4		2 3 4		4 4			1 2 3 4		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Design Categories S and DS	1 2 3 4	1 2 3 4	1 <sup>a</sup> 2 <sup>a</sup> 3 <sup>a</sup> 4 <sup>a</sup>	1 2 3 4	1 2 3 4	1 <sup>b</sup> 2 <sup>b</sup> 3 <sup>b</sup> 4 <sup>b</sup>	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Design Category A			2 3 4	4 4	4 4	3 <sup>b</sup> 4 <sup>b</sup>	3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
<sup>a</sup>	No requirement for toilets inside a sleeper compartment.												
<sup>b</sup>	No requirement if the technical cabinet complies with one of the following conditions, and no electrical traction equipment is placed in												
	— the technical cabinet content is compliant to CEN/TS 45545-2,												
	— the technical cabinet is contained in a manner compliant to CEN/TS 45545-3.												

### 5.3 Response to automatic detection

#### 5.3.1 General

There shall be an automatic alarm status and automatic alarm on activation of a detector. The alarm shall be local and/or remote as specified in 5.3.2 and 5.3.3.

#### 5.3.2 Local alarm

For design categories S and DS, a local alarm shall be given in the vicinity of the activated detector in passenger areas and sleeper compartments.