

## European Standardisation in Fire Safety of Rolling Stock

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### Summary

The article discusses the principles of European standardization and the history and future prospects of the package of EN 45545. This standard is being developed since 1991 to spring 2013, will be in the autumn of 2013 subject to verification.

**Key words:** EN 45545, CEN / CENELEC, TRANSFEU project

In the course of industrialization, the importance of standards has increased strongly. This applies especially for rolling stock interoperability and fire safety in vehicles. In Europe, standardization assists in opening up markets and reducing trade barriers. It is therefore all the more important to find a common basis by means of standardization so that an active contribution for reducing trade barriers is given.

The European standards organizations CEN and CENELEC are the umbrella organizations for all national standards bodies in Europe. In CEN and CENELEC, there is one member per country representing the standardization interests of that country. German interests are represented by DIN in CEN and by the DKE in CENELEC. Besides full members, there are also affiliates and associated organizations who may participate in standardization work but do not have voting rights.

Members are active in the committees of CEN / CENELEC, the General Assembly, policy and technical steering committees and technical committees, to which national delegations are sent to represent the consolidated standpoint of their countries. Delegates from European organizations, representing the respective subject area, may participate as observers.

CEN and CENELEC have adopted the vote weighting system specified for the European Union in the Nice Treaty. In the formal vote, 71% of the weighted votes are necessary for a European Standard to be adopted. The number of votes of each country is allocated as shown in the figure below (Fig. 1).

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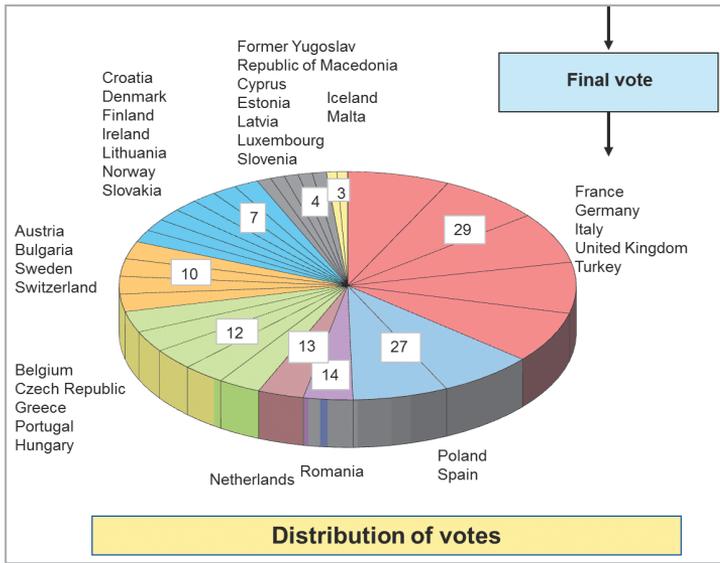


Fig. 1. Distributions of Votes Source: DIN

The goal of European standardization is to reduce the number of national standards in member states. This is achieved by the implementation by each and every member of International Standards or, alternatively, the development of European Standards where European requirements justify this. Today, between 85% and 90% of all DIN's standardization projects are European or international.

European standardization is overseen by the national standards body of each country. In the case of Germany, this is DIN. The decision whether to actively participate at European level is taken by a DIN standards committee. Technical input and consultation is provided by a national mirror committee, which determines the German opinion on a standards topic, develops its own proposals, and sends delegates to the European committee to represent the German standpoint and partake of the consensus process, as shown on Figure 2.

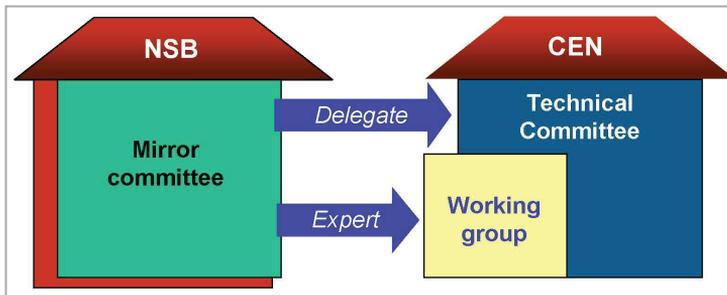


Fig. 2. Connection between Working Group and Mirror Committee Source: DIN

With the standstill policy, all member states agreed not to publish national contradicting standards while working on a similar European Standard or after its publication. This policy aims to prevent any situation occurring during preparation or after publication of a European Standard which impair or undermine harmonization.

A European Standard needs to run through several steps during its development. At the beginning, a proposal for a standardization project is given to the corresponding Working Group (WG). After accepting this proposal as a work item, the WG develops a Draft Standard, which should be finished within 12 months. This draft (prEN) is then submitted to Enquiry. After the translation phase of 2 month, this draft will be distributed to the national mirror committees where all comments received from the interested parties or individual persons in the country of the relevant NSB will be discussed. The consolidated national comments list will be submitted to CEN which brings together all national comments of the member states in one list, the so called Table of Comments (ToC), which will be handled by the WG and distributed to all member states afterwards by the responsible TC or SC Secretariat. A Comments Resolution Meeting reviews and clarifies the comments rejected by the WG and the ones participating member state delegates want to speak about again. At the end of the CRM the present delegates take a vote on the future of the EN concerned. In almost all cases the vote is positive and the document is adopted for Formal Vote. As a consequence of this, all accepted comments will be implemented in the Draft Standard. This Final Draft Standard (FprEN) is then submitted to Formal Vote after a translation period of 2 month. The Formal Vote lasts 2 month. In this stage, only editorial and general comments are considered. After a positive vote of at least 71% weighted yes-votes and the incorporation of general and editorial comments, the document will be ratified and is published as a European Standard. After another translation period, this European Standard will be transposed into a national standard by the NSB (Fig. 3, in the case of DIN this will become a DIN EN).

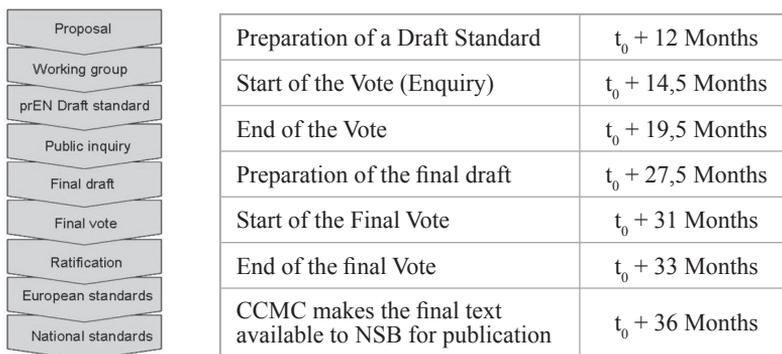


Fig. 3. Standardisation process with Time Table Source: DIN

Concerning the standard series EN 45545 „Fire safety on rolling stock” [1–7], this is the first time that a standard series has been published containing a homogeneous methodology for fire safety on rolling stock for both national and transnational traffic. The development of this series took place in cooperation between the Technical Committees of CEN (TC 256) and CENELEC (TC 9X). In order to achieve this, a Joint Working Group Fire Safety was created in which AFNOR held the position of the Convenor and DIN was responsible for the secretariats work. Within this Joint Working Group, four sub groups were established; each of them was working on different parts of the series. The result was the conversion from the Technical Specification series TS 45545 to the standard series EN 45545, which had been ratified in March 2013 with some technical changes and will be published by October 2013 by the National Standardization Bodies (NSB). A transition period of three years has been agreed, meaning that all contradicting national standards have to be withdrawn after that time. This provides the opportunity for manufacturers of relevant fire safety parts to adjust to the new requirements.

CEN and CENELEC offer the possibility to conclude Project Liaisons with a relevant Technical Committee. The best example is the liaison of the Joint Working Group with the EU Research Project TRANSFEU [1].

This liaison allows a research project representative to participate in the meetings of the TC and relevant Working Groups as an observer. The observer is without decision power, but can benefit from synergies between the research and standardization work (avoiding duplication of standardization work) and propose new work items (standards) directly to the corresponding TC (Fig. 4).



Fig. 4. Project Liaisons between Standardisation and Research Projects of the EU Source: DIN

For the future, an early revision of the standard series is planned in order to implement new knowledge and the results of the European Research Project TRANSFEU [1]. The Survey Group, which has been created to make the final editorial cut on all parts of this series, has also developed a proposal for a possible strategy. Both TC (TC 256 and TC 9X) decided to revise the documents in a re-activated Working Group 1 „Fire Safety”, i.e. under Mode 4 cooperation. This means that the leadership is taken by CEN/TC 256, the EN 45545-5 [6] will therefore be handed over from CENELEC to CEN, and TC 9X will take part as an Observer. TC 9X members are also allowed to participate in the meetings, but they have no voting right.

The Convenor of WG 1, Mr. Serge Métral, proposed to work in three sub-groups and to amend only the parts 1, 2, 3, 5 and 6 of EN 45545 [2–4, 6, 8] series in conjunction with the implementation of the TRANSFEU results. The smoke and toxicity testing method issues should be transferred to a new Part 8, containing also the Annexes C and D of the current Part 2. Seats testing method issues should also be transferred into a new Part 9 which contains the Annexes A and B of the current Part 2. The new Requirement for a Standard (RfS) from European Railway Agency (ERA) on „Fire containment measures” should also be considered.

## Conclusions

1. As all necessary decisions have been taken by both TC to pave the way as requested by the Survey Group, the revision of the EN 45545 [2–8] series can be started soon.
2. Implementation of liaisons between Standardisation and Research Projects of the EU will benefit in future from synergies between the research and standardization work and propose new work items directly to the corresponding TC.

## Literature

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2. EN 45545:2013 Railway applications – Fire protection on railway vehicles. Part 1 – General.
3. EN 45545:2013 Railway applications – Fire protection on railway vehicles Part 2 – Requirements for fire behaviour of materials and components.

4. EN 45545:2013 Railway applications – Fire protection on railway vehicles Part 3 – Fire resistance requirements for fire barriers.
5. EN 45545:2013 Railway applications – Fire protection on railway vehicles Part 4 – Fire safety requirements for railway rolling stock design.
6. EN 45545:2013 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.
7. EN 45545:2013 Railway applications – Fire protection on railway vehicles Part 6 – Fire control and management systems.
8. EN 45545:2013 Railway applications – Fire protection on railway vehicles Part 7 – Fire safety requirements for flammable liquid and flammable gas installations.

## **Normalizacja europejska w ochronie przeciwpożarowej taboru szynowego**

### **Streszczenie**

W artykule omówiono zasady normalizacji europejskiej oraz historię i dalsze perspektywy dotyczące pakietu norm EN 45545. Norma, opracowywana od 1991 r. do wiosny 2013 r., jesienią 2013 r. będzie poddana procesowi weryfikacji.

**Słowa kluczowe:** EN-45545, CEN / CENELEC, project TRANSFEU

## **Европейская стандартизация в области противопожарной защиты подвижного состава**

### **Резюме**

В статье обсуждены принципы европейской стандартизации, а также история и перспективы, касающиеся серии стандартов EN 45545. Эти стандарты, разрабатываемые от 1991 г. до весны 2013 г., уже осенью 2013 г. будут подвергнуты проверке.

**Ключевые слова:** стандартизация, EN 45545.