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Railway applications — Polymeric composite sleepers, bearers and transoms —

Part 1: Material characteristics

Applications ferroviaires — Traverses et supports en matériaux composites à matrice polymère —

Partie 1: Propriétés des matériaux

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 269, *Railway applications*, Subcommittee SC 1, *Infrastructure.*

This second edition cancels and replaces the first edition (ISO 12856-1:2014), which has been technically revised.

The main changes are as follows:

— this document has been updated in accordance with addition of the new ISO 12856-2 (product testing) and ISO 12856-3 (general requirements).

A list of all parts in the ISO 12856 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Railway applications — Polymeric composite sleepers, bearers and transoms —

Part 1: Material characteristics

1 Scope

This document specifies the characteristics of polymeric composite and reinforced polymeric composite materials in the manufacture of polymeric composite railway sleepers. It is applicable to sleepers, bearers and transoms to be installed in all tracks (both heavy and urban rail) with or without ballast.

NOTE In this document, the term "sleeper" refers to "sleeper, bearer and transom".

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.

ISO 4582, *Plastics — Determination of changes in colour and variations in properties after exposure to glass-filtered solar radiation, natural weathering or laboratory radiation sources*

ISO 4892-2:2013, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps*

ISO 4892-4, *Plastics — Methods of exposure to laboratory light sources — Part 4: Open-flame carbon-arc lamps*

ISO 12856-2:2020, *Railway applications — Polymeric composite sleepers, bearers and transoms — Part 2: Product testing*

ISO 12856-3, *Railway applications — Polymeric composite sleepers bearers and transoms — Part 3: General requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12856-3 apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Material characteristics

4.1 Resistance

4.1.1 Chemical compatibility

The material of the polymeric composite sleepers shall be resistant against all chemicals that can regularly contaminate the sleepers in conventional railway traffic, e.g. oils/grease/hydrocarbons

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