

AS 1085.22:2020



# Railway track materials: Alternative material sleepers



Infrastructure Standard



This Australian Standard® AS 1085.22 Railway track materials: Alternative material sleepers was prepared by a Rail Industry Safety and Standards Board (RISSB) Development Group consisting of representatives from the following organisations:

Arc Infrastructure	ARTC	Aurizon
Austrak	B&H Strategic Services	Integrated Recycling
IRT - Monash University	Queensland Rail	Rocla
RST Railway Engineering	University of Southern Queensland	

The Standard was approved by the Development Group and the Infrastructure Standing Committee in March, 2020. On March 24, 2020 the RISSB Board approved the Standard for release.

This standard was issued for public consultation and was subject to a stakeholder workshop. It was also independently validated before being approved.

Development of the Standard was undertaken in accordance with RISSB's accredited process. As part of the approval process, the Standing Committee verified that proper process was followed in developing the Standard

RISSB wishes to acknowledge the positive contribution of subject matter experts in the development of this Standard. Their efforts ranged from membership of the Development Group through to individuals providing comment on a draft of the Standard during the open review.

I commend this Standard to the Australasian rail industry as it represents industry good practice and has been developed through a rigorous process.



**Deb Spring**  
Exec. Chair / CEO  
Rail Industry Safety and Standards Board

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# AS 1085.22:2020

## Railway track materials: Alternative material sleepers

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This Standard was prepared by the Rail Industry Safety and Standards Board (RISSB) Development Group AS 1085.22 Railway track materials: Alternative material sleepers. Membership of this Development Group consisted of representatives from the organisations listed on the inside cover of this document.

## Objective

The objective of this Standard is to provide purchasers and suppliers including owners, operators, designers and manufacturers of railway sleepers with requirements for the specification, manufacture and testing of alternative material sleepers for use in railway track.

This Standard is Part 22 of the AS 1085 (Railway track material) series.

## Compliance

There are two types of control contained within Australian Standards developed by RISSB:

1. Requirements.
2. Recommendations.

**Requirements** – it is mandatory to follow all requirements to claim full compliance with the Standard. Requirements are identified within the text by the term 'shall'.

**Recommendations** – do not mention or exclude other possibilities but do offer the one that is preferred. Recommendations are identified within the text by the term 'should'.

Recommendations recognise that there could be limitations to the universal application of the control, i.e. the identified control is not able to be applied or other controls are more appropriate or better.

For compliance purposes, where a recommended control is not applied as written in the standard it could be incumbent on the adopter of the standard to demonstrate their actual method of controlling the risk as part of their WHS or Rail Safety National Law obligations. Similarly, it could also be incumbent on an adopter of the standard to demonstrate their method of controlling the risk to contracting entities, or interfacing organisations where the risk may be shared.

Controls in RISSB standards address known railway hazards are addressed in appendix O.

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 Preview

## 1 Scope and general

### 1.1 Scope

This Standard specifies performance requirements for sleepers made from non-traditional materials, and the associated test methods to establish conformity.

The sleepers are for use in railway applications with continuously welded rail or jointed rail, and supported by ballast.

This Standard does not:

- (a) include the design of bridge transoms or turnout bearers,
- (b) specify manufacturing process, given the diverse nature of the materials used.

NOTES:

1. Refer to AS 1085.14, AS 1085.17 and AS 3818.2 for sleepers made from traditional railway track materials such as prestressed concrete, steel and timber respectively.
2. Although this Standard is intended for the design of sleepers, the principles and procedures may be adapted for the design of turnout bearers.

### 1.2 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:

- AS 1085.19 Railway track materials, Part 19: Resilient fastening assemblies.
- ISO 12856-1 Plastics — Plastic railway sleepers for railway applications (railroad ties).

NOTE: Documents for informative purposes are listed in a Bibliography (Appendix N) at the back of the Standard.

### 1.3 Definitions

For the purposes of this document, the terms and definitions given in RISSB Glossary: <https://www.rissb.com.au/products/glossary/> and the following apply:

- (a) **alternative material sleepers**  
sleepers manufactured from materials other than timber, concrete and steel
- (b) **lateral load**  
a load or vector component of a load at the head of the rail parallel to the longitudinal axis of the sleeper and perpendicular to the longitudinal axis of the rail
- (c) **negative bending**  
bending of a sleeper by application of a load that produces tension in the top surface of the sleeper
- (d) **positive bending**  
bending of a sleeper by application of a load that produces tension in the bottom surface of the sleeper
- (e) **proof testing (control testing)**  
testing of samples taken from routine production.