



AUSTRALIAN RAIL INDUSTRY
STANDARDS ORGANISATION

AS 7529.4

Rolling Stock Fire Safety – Part 4: Track Machines

STANDARDS



Advancing safety and productivity

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Development of this Standard was prepared by an Australian Rail Industry Standards Organisation (ARISO) Development Group consisting of representatives from the following organisations:

KiwiRail, Plasser Australia, Queensland Rail, Rail Tram and Bus Union, and Transport for NSW.

The Rolling Stock Standing Committee verified that ARISO's accredited process was followed in developing the product, before the ARISO Board approved the document for publication.

ARISO 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 comments 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.



Alan Fedda
Chief Executive Officer
Australian Rail Industry Standards Organisation

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2026	10 September 2026	This document has been reviewed to ensure it remains relevant and applicable. The latest review assessed the content, confirming that while updates were made to align with current industry practices, technologies, and regulatory requirements, the original authorship and copyright have been acknowledged as required.

Approval

Name	Date
Australian Rail Industry Standards Organisation Board	10 September 2026

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Preface

This standard was prepared by the Rolling Stock Fire Safety – Part 4: Track Machines Development Group, overseen by the ARISO Rolling Stock Standing Committee.

The major changes in this revision are as follows:

- (a) Inclusion of zero emission technologies such as lithium-ion batteries, electric double-layer capacitors and hydrogen fuel cells.
- (b) Structural alignment with the other AS 7529 fire safety standards.
- (c) A comprehensive update of all sections.

Objective

The object of this document is to provide requirements, recommendations, and guidance for fire safety for track machine rolling stock operating in Australia.

The requirements aim to ensure rolling stock is designed and maintained to reduce fire ignition risk, control fire growth, minimize fire impacts on people and operations, and support safe occupant egress and emergency intervention.

Compliance

There are four types of provisions contained within Australian Standards developed by ARISO:

- (a) Requirements.
- (b) Recommendations.
- (c) Permissions.
- (d) Constraints.

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 recognize 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.

Permissions – conveys consent by providing an allowable option. Permissions are identified within the text by the term 'may'.

Constraints – provided by an external source such as legislation. Constraints are identified within the text by the term 'must'.

Using this Standard

Appendices in ARISO Standards may be designated either "normative" or "informative". A "normative" appendix is an integral part of a Standard and compliance with it is a requirement, whereas an "informative" appendix is only for information and guidance.

ARISO Standards identify known hazards relevant to the railway industry. Appendix A provides a non-exhaustive list of hazards relevant to the scope of this Standard.

Commentary C Preface

This Standard includes a commentary on some of the clauses. The commentary directly follows the relevant clause, is designated by 'C' preceding the clause number and is printed in italics in a box. The commentary is for information and guidance and does not form part of the Standard.

AS 7529.4 PREVIEW ONLY

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Section 1 Scope and general

1.1 Scope

This document outlines fire safety requirements for track machines. These requirements are intended to form part of a broader rolling stock fire safety strategy aimed at minimizing the risk of harm to staff. This document also aims to reduce the risks that a fire on such rolling stock can pose to the safety of other persons who might be affected. This includes emergency responders, infrastructure workers and nearby passengers.

Fire safety is achieved through design, construction and maintenance measures, including compartmentation, fire-resistant materials, fire detection and suppression systems and features that support evacuation.

This document includes fire safety requirements for track machines configured with zero emission technology used for traction power or auxiliary supply. This includes battery-electric, electric double-layer capacitors and hydrogen fuel cell technologies. These systems introduce distinct fire safety hazards compared to conventional diesel and electric traction

This document applies to the design, construction, modification and maintenance of track machines, including track machines fitted with zero emission energy traction power systems such as energy storage systems (ESS), electric double-layer capacitors (EDLC) and hydrogen fuel systems (HFS). The document covers requirements for fire prevention, fire detection, fire suppression systems, material flammability and evacuation.

This document does not cover:

- (a) operational procedures for rolling stock, including activities such as refuelling, hydrogen recharging, battery charging, and handling flammable liquids or gases during those processes;
- (b) track machines with liquified petroleum gas (LPG), liquified natural gas (LNG) or compressed natural gas (CNG) as traction power fuel;
- (c) heritage, light rail and cane rolling stock, but items from this document can be applied to such systems as deemed appropriate by the relevant RIM and/or RSO;
- (d) light duty track machines;
- (e) road-rail vehicles.

The requirements of this document are aimed at minimising fire risk to life of rolling stock occupants as well as the risks that a fire on such rolling stock can pose to the life and safety of other users of the infrastructure.

The requirements of this document do not address asset protection of either the infrastructure maintenance rolling stock or the infrastructure. The requirements of this document do not contain any specific mitigations for fire safety risks associated with arson, terrorism, or with fires following train-to-train collision and ignition.

This document deals with explosion and battery defragmentation risks in the context of reducing the risk of a build-up of flammable gases that could result in an explosion. However, mitigating the consequence of a blast from an explosion is not part of the scope of this document.

Compliance with this Standard represents the minimum requirement under the designer's duties under Rail Safety National Law.