

Australian Standard™

**Thermal performance of refrigerated
transport equipment—Specification and
testing**

This Australian Standard was prepared by Committee ME-006, Refrigeration. It was approved on behalf of the Council of Standards Australia on 16 June 2003 and published on 11 September 2003.

The following are represented on Committee ME-006:

Air Conditioning and Refrigeration Wholesalers Association
Airconditioning and Refrigeration Equipment Manufacturers Association of Australia
Australasian Railways
Australian Chamber of Commerce and Industry
Australian Fluorocarbon Council
Australian Industry Group
Australian Institute of Refrigeration Air Conditioning and Heating
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee ME-006, Refrigeration.

The term 'informative' has been used in this Standard to define the application of the appendix to which it applies. An 'informative' appendix is only for information and guidance.

Statements expressed in mandatory terms in Notes to Tables are deemed to be requirements of the Standard.

This Standard incorporates a Commentary on some clauses. The Commentary is set directly following the relevant clause and is designated by 'C' preceding the clause number and printed in italics in a panel. The Commentary is for information only and does not need to be followed for compliance with the Standard.

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FOREWORD

Logistically, Australia presents challenges in the daily functions of distributing perishable food products nationally. Refrigerated transport equipment is required to effectively and efficiently maintain the appropriate temperature environment around the load, whilst often coping with extreme external temperature environments.

This Standard was developed by Standards Australia Committee ME-006 with the active input from the refrigerated transport industry to address the need for nationally recognized and endorsed performance-based specifications for equipment used to road transport refrigerated food products in Australia. The Standard is a result of the preliminary testing conducted under the guidance of the Refrigerated Transport Manufacturers Forum (RTMF), an organization with members drawn from the two national industry organizations that are involved in the refrigerated distribution of perishable food products—the Australian United Fresh Transport Advisory Committee Limited and the Refrigerated Warehouse and Transport Association, and with the involvement of recognized consultants and industry experts in the area of refrigerated transport, both within Australia and internationally.

The development of this Standard forms part of a multistage process. The first phase of the project covered mostly preliminary equipment testing and the initial drafting of the Standard and was jointly funded by industry and the Federal Department of Transport and Regional Services. A task for preparing an Australian Standard was assigned to a new Standards Australia Subcommittee ME-006-03 involving experts from a wide industry base including equipment manufacturers, distributors, truck builders and installers, operators, users, consulting engineers, associations and government organizations.

This Australian Standard is particularly timely given the current emphasis on food safety and quality systems. National performance-based specifications enable the verification of equipment based on performance, in line with the implementation of correct operational procedures.

STANDARDS AUSTRALIA

Australian Standard

Thermal performance of refrigerated transport equipment— Specification and testing

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard covers the thermal performance of insulated equipment fitted with any type of refrigeration system and intended for the transport of perishable products by road, whether as individual packages or as unit loads (e.g., palletized). Trailers and vehicle bodies are included; refrigerated tankers and all insulated but unrefrigerated vehicle bodies are excluded.

NOTES:

- 1 Product temperature may differ from air temperature and is not addressed by this Standard. Recommendations for maintaining appropriate product temperatures can be found in publications listed in Appendix A.
- 2 Appendices C, D and E provide guidance on relevant bibliography and metric conversions.

1.2 OBJECTIVE

The objective of this Standard is to set down specifications and testing procedures for the thermal performance of refrigerated equipment intended for the transport of perishable goods by road. It is based on heat balance between the insulating ability of the body and the refrigerating power of the refrigeration unit.

1.3 APPLICATION AND TRANSITIONAL ARRANGEMENTS

1.3.1 Inclusions

The following are covered by this Standard:

- (a) Insulated bodies, trailers, trucks and van bodies fitted with any form of refrigeration systems.
- (b) Insulated compartments of multi-compartment bodies.
- (c) All types of mechanical refrigeration equipment (i.e., refrigeration equipment using compressors or absorption devices) including those powered by their own internal engine, those powered from the vehicle's engine, and those fitted with stand by electric motors.
- (d) All types of refrigeration systems using an expendable refrigerant (e.g., liquefied carbon dioxide and liquefied nitrogen).
- (e) All types of refrigeration systems using heat storage devices (e.g., eutectic systems, that store 'cold' by means of a phase change material).
- (f) Hybrid refrigeration systems (that is, those that combine two or more of the above types of refrigeration).