



AEROSPACE RECOMMENDED PRACTICE

ARP1523

REV. C

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Superseding ARP1523B

Air Mode Insulated Containers -
Thermal Efficiency Requirements

RATIONALE

The SAE AGE-2A committee determined that the technology/practice defined in this standard has reached a level of maturity such that it is unlikely to change in the foreseeable future; therefore, it does not require regular 5-year reviews by the committee and it is appropriate for it to be stabilized.

STABILIZED NOTICE

This document has been declared "Stabilized" by the SAE AGE-2A Cargo Handling Committee and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

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FOREWORD

This SAE Aerospace Recommended Practice (ARP) outlines supplementary requirements for air cargo insulated containers of all sizes.

Throughout this ARP the minimum essential criteria are identified by use of the key word "shall". Recommended criteria are identified by use of the key word "should" and, while not mandatory, are considered to be of primary importance in providing thermal efficiency. Deviation from recommended criteria should only occur after careful consideration, extensive testing and thorough service evaluations have shown alternate methods to be satisfactory.

Nothing in this ARP shall in any way cancel or reduce the status of the specifications which determine airworthiness, industry, ground handling or any other characteristics of the units.

This ARP refers to the thermal efficiency of all insulated air cargo containers irrespective of their size and designation. It does not provide details concerning refrigerated or heated containers and/or the methods and equipment used to obtain the required thermal effect, such as cryogenic, gaseous or liquid fluids, or mechanical compressors.

In preparing this ARP, for compatibility and guidance purposes, the requirements of ISO 1496-2:1996, Series 1 freight containers - Specification and testing - Part 2: Thermal containers, have been taken into account as far as procedures for measuring the thermal efficiency are concerned (see clause 6).

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1. SCOPE:

- 1.1 This SAE Aerospace Recommended Practice (ARP) delineates the minimum operational requirements that will ensure that perishable cargoes in insulated standard airborne containers are kept in prime condition during the ground handling and air transportation cycle for a maximum period of 36 h.
- 1.2 The term "perishable cargo" refers, for example, to dairy produce, fruit, vegetables, flowers, frozen foods, meat, fish, etc., requiring maintenance of specific temperature ranges during door-to-door transportation involving air transport.
- 1.3 The overall temperature range for perishable commodities may be anywhere between +20 °C (+68 °F) and -25 °C (-13 °F) during the transport cycle.
- 1.4 During this period of door-to-door transportation, the container may be subjected to outside ambient temperature with extremes of +45 °C (+113 °F) and -50 °C (-58 °F) and a relative humidity of up to 100%.
 - 1.4.1 For design purposes - and to allow for temperature drops and rises occurring between origin and destination in the air transport cycle - the container shall perform its protective function within an outside temperature variation, ΔT , of 53 units of temperature interval Celsius (95 units of temperature interval Fahrenheit) within the range of temperature exposure extremes stated in 1.4.

NOTE 1: It should be noted that throughout this document environmental (atmospheric) temperatures are expressed in commercial values of degrees Celsius/Fahrenheit (°C/°F) and technical (scientific) temperatures are expressed in kelvin (K).
A temperature conversion table is given for convenience in Appendix C.

2. APPLICABLE DOCUMENT:

The document listed below contains provisions that, through reference in this text, constitute provisions of this Aerospace Recommended Practice. At the time of publication, the edition indicated was valid. As all publications are subject to revision, parties to agreements based on this ARP are encouraged to apply the most recent edition of the document.

2.1 ISO Publication:

Available from American National Standards Institute, 11 West 42nd Street, New York, NY, 10036.

ISO 11242:1996 Aircraft - Pressure equalization requirements for cargo containers