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Australian Standard 2511—1981

DRY BULK CONTAINERS— NON-PRESSURIZED (BOX TYPE)

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BOX, SHIPPING (FOR DRY BULK SOLIDS)]



STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter



THE FOLLOWING INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS AND departments were officially represented on the committee entrusted with the preparation of this standard:

Association of Australian Port and Marine Authorities
Australian Chamber of Shipping
Australian Maritime Employers Association
Australian Road Transport Federation
Australasian Steamship Owners Federation
Confederation of Australian Industry
Department of Defence
Department of Motor Transport, N.S.W.
Department of Science and Technology
Department of Transport
International Cargo Handling Co-ordination Association
Metal Trades Industry Association of Australia
National Freight Forwarders Association
Railways of Australia Committee

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STANDARDS ASSOCIATION OF AUSTRALIA

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Amendment No 1

to

AS 2511—1981

DRY BULK CONTAINERS—NON-PRESSURIZED (BOX TYPE)

CORRECTION

SUMMARY: This amendment applies to Table 1.2.

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Problem Set 10: The Riemann Hypothesis

1. Let $\zeta(s)$ be the Riemann zeta function.

(a) Show that $\zeta(s)$ has a simple pole at $s=1$.

(b) Show that $\zeta(s)$ is analytic for $\text{Re}(s) > 1$.

(c) Show that $\zeta(s)$ has no zeros for $\text{Re}(s) > 1$.

(d) Show that $\zeta(s)$ has a simple pole at $s=1$ and is analytic elsewhere for $\text{Re}(s) > 1/2$.

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AS 2511—1981

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PREFACE

This standard was prepared by the Association's Committee on Large Freight Containers. It is the fifth standard in a series for different types of freight containers which are being issued following the guidelines put forward by the International Organization for Standardization Committee ISO/TC 104, Freight Containers.

Australian standards issued to date concerned with international multimodal freight containers are as follows:

AS 1563	General Purpose Freight Containers (International Sizes)
AS 1564	Marking and Identification of Freight Containers
AS 1727	Tank Containers (International Sizes)
AS 1780	Thermal Freight Containers
AS E44	Freight Containers (International Sizes) Part V—Cargo Platforms
AS E45	Corner Fittings for Freight Containers

ISO 1496, Series 1 Freight Containers—Specification and Testing, is being issued by the International Organization for Standardization in ten Parts, some of which have not yet been published. The ten Parts are as follows:

Part I	General Cargo Containers
Part II	Thermal Containers
Part III	Tank Containers for Liquids and Gases
Part IVa)	Bulk Containers—Nonpressurized
Part IVb)*	Bulk Containers—Pressurized
Part V	Platform Containers
Part VIa)*	Platform Based Containers with Fixed Ends
Part VIb)*	Platform Based Containers with Folding Ends
Part VIc)	Platform Based Containers, Open-sided, with Complete Superstructure
Part VII	Air Mode Containers

NOTE: The type code designation for each container grouping is set out in the relevant part. Reference may also be made to AS 1564 which has been partly superseded by Annex G of ISO 6346—1981.

This standard sets out dimensions, details of components, testing and marking of dry bulk containers of non-pressurized box type having gravity discharge of nominal external lengths 6 m and 12 m, and maximum gross masses 20 320 kg and 30 480 kg, respectively. It follows the external dimensions specified in AS 1563 which in turn was based on ISO 668.

Attention is drawn to the carriage by road of the Series 1 containers covered by this standard. In certain instances special permits will be required where the axle load or vehicle dimensions exceed the requirements specified by State road authorities.

This standard recommends that containers be lifted from the top by means of the corner fittings provided.

Provision is made for handling by grapples where required. Likewise provision is made for fork truck lifting by means of pockets or side lifting.

The standard also covers the inspection of containers after manufacture. It is recommended that a warning should be given to intending users of containers that regular inspection should be carried out. As a result, it has been suggested that, prior to being loaded, every container should be externally inspected for defects likely to affect the container during use. In the event of the inspection disclosing any defect, the container should be withdrawn and repaired prior to being used.

The standard does not give specific details of construction. It includes requirements for the stamping and marking of containers for identification purposes.

This standard requires reference to the following standards:

AS 1080	Methods of Test for Timber Part 1—Moisture Content
AS 1563	General Purpose Freight Containers (International Sizes)
AS 1564	Marking and Identification of Freight Containers
AS 1604	Preservative Treatment of Sawn Timber, Veneer and Plywood
AS 1657	SAA Code for Fixed Platforms, Walkways, Stairways and Ladders
AS 1720	SAA Timber Engineering Code
AS 2129	Flanges and Bolting for Pipes, Valves and Fittings
AS E45	Corner Fittings for Freight Containers
AS O1	Glossary of Terms Used in Timber Standards
ISO 668	Freight Containers—External Dimensions and Ratings
ISO 6346	Freight Containers—Coding, Identification and Marking

*In course of preparation.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

for

DRY BULK CONTAINERS—NON-PRESSURIZED (BOX TYPE)

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard specifies requirements for the specification and testing of dry bulk containers of non-pressurized box type having gravity discharge, suitable for conveyance by road, rail and sea, including interchange between these forms of transport.

NOTE: Containers to be used for the carriage of dangerous goods are subject to State and national requirements as applied by the appropriate authority.

1.2 DEFINITIONS. For the purpose of this standard, the definitions given in AS 1563 and the following apply:

1.2.1 Approved—approved by a Statutory Authority.

1.2.2 Bulk density—the mass per unit volume of a dry bulk solid measured when the dry bulk solid is in a loose or non-compacted condition.

1.2.3 Cargo space—the space, bounded by the container side walls, end walls, floor and roof or cover and which is completely enclosed when all apertures in the container are closed.

1.2.4 Dry bulk Container—a freight container, of the non-pressurized box type, capable of being filled with dry bulk solids without packaging, and of being gravity discharged.

NOTE: In this standard, dry bulk container may be referred to as 'container'.

1.2.5 Dry bulk solid—separate solid particles normally substantially in contact with one another and capable of, or which may be rendered capable of, flow.

1.2.6 Fluidized gravity discharge and aeration systems—processes to assist discharge by introducing air, or inert gas, to a dry bulk solid resulting in the separation of particles, and improving flowability of the dry bulk solid.

1.2.7 Insulated dry bulk container—a container built with insulating walls, doors, floor and roof which retard the rate of heat transmission between the inside and outside of the container without the use of devices for cooling and/or heating.

1.2.8 Interface—point(s) on a container at which the connection between the container and any external discharge, air supply or inert gas supply system is connected or disconnected.

1.2.9 Internal discharge system—the equipment for discharge secured within a container.

1.2.10 Maximum operating payload P —the maximum permissible mass of the freight container contents.

1.2.11 Rating R (maximum gross mass)—the maximum permissible combined tare mass of a container and its maximum operating payload (see Table 1.2).

1.2.12 Statutory Authority—an authority or authorities designated as such by the governments concerned.

1.2.13 Tare mass T —the mass of the empty container.

1.2.14 Total capacity—the volume of a container's cargo space.

1.2.15 Ullage—the portion of the total capacity of a container not occupied by cargo, expressed as a percentage of the total capacity.

1.3 TYPE CODE DESIGNATION. Type code designation for dry bulk containers having gravity discharge shall be as given in Table 1.1.

NOTE: The type code designation given in Table 1.1 is consistent with ISO 6346 and AS 1564.

TABLE 1.1

TYPE CODE DESIGNATIONS FOR DRY BULK CONTAINERS HAVING GRAVITY DISCHARGE

Type code designation	Type
80	Dry bulk: non-pressurized

1.4 CONTAINER DESIGNATION. Containers shall have the designations given in Table 1.2, according to external dimensions and rating.

1.5 EXTERNAL DIMENSIONS. The external dimensions of the containers shall be as given in Table 1.2.

NOTE: A special permit may be required in some States of Australia where it is desired to carry 1AA, 1A or 1AX containers, or two ICC, IC or ICX containers by road.

No part of a container, its associated fittings and/or equipment shall project beyond these overall external dimensions.

1.6 INTERNAL DIMENSIONS. The internal dimensions of a container shall be as large as practicable. Such dimensions shall be the minimum measured from inner surfaces including bulkheads, roof air ducts, floor air ducts, or such other fitments where provided.

1.7 RATING. The rating R (maximum gross mass) of a container shall be as given in Table 1.2.