Australian Standard®

SAA PACKAGING CODE

Part 9.1—METAL CONTAINERS
Metal Cans and Tubes

This Australian standard was prepared by Committee PK/25, Packaging Code. It was approved on behalf of the Council of the Standards Association of Australia on 10 January 1984 and published on 1 March 1984.

The following interests are represented on Committee PK/25:

Agricultural and Veterinary Chemicals Association of Australia
Adhesives and Sealants Manufacturers Association
Ansett Airlines of Australia
Australian Institute of Packaging
Australian and New Zealand Pulp and Paper Industry Technical Association (Appita)
Bureau of Steel Manufacturers of Australia
Canmakers Institute of Australia
Confederation of Australian Industry
Department of Defence
Department of Primary Industry
Department of Science and Technology
Glass Packaging Institute of Australia
Packaging Council of Australia
Plastics Institute of Australia Incorporated
Printing and Allied Trades Employers Federation of Australia
Railways of Australia Committee
Victorian Sawmillers Association

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PREFACE

This standard was prepared by the Association's Packaging Code Committee under the direction of the Packaging Standards Board.

The purpose of this standard is to provide general information on materials and types of metal cans and tubes for packaging.

It is intended for those who are contemplating the use of metal cans and tubes for the first time or who wish to be introduced to the technology and economics of this industry. For those readers who wish to delve deeper, it will provide a useful basis for communication.

The language has been kept relatively simple but the use of some technical terms is unavoidable. Where explanation of these terms is needed, reference should be made to AS 2400, Part 1—Glossary of Packaging Terms.

The SAA Packaging code has been divided into different parts dealing with specific subjects, as follows:

Part	*Title*
1	Glossary of Packaging Terms*
2	Basic Principles of Packaging Practice*
3	Mechanical Aids in Package Handling
4	Protection against Spoilage of Packages and their contents by Micro-organisms, Insects, Mites and Rodents*
5	Metal Protection
6	Paper and Board, Wrappers and Containers
7	Timber Containers
8	Textile Bags, Sacks and Wrappings
9	Metal Containers 9.1 Metal Cans and Tubes*
10	Cushioning Materials
11	Twines and Cords
12	Adhesive Closing and Sealing Tapes
13	Tensional Strapping*
14	Adhesives for Packaging
15	Glass Containers
16	Transparent Cellulose Films, Plastics Films, Metal Foils and Flexible Laminates
17	Packaging in Plastics Containers
18	Use of Desiccants in Packaging*
19	Packaging for Air freight*
20	Handling of Goods in Freight Containers*
21	Packaging of Dangerous Goods
22	Closures
23	Shrink and Stretch Wrapping*

During the preparation of the SAA Packaging Code, account is being taken of material included in BS 1133, Packaging Code, and the assistance obtained from this source is acknowledged.

* Published.

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STANDARDS ASSOCIATION OF AUSTRALIA

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PART 9.1—METAL CONTAINERS—METAL CANS AND TUBES

1 SCOPE. This standard provides general information on materials and types of metal cans and tubes for packaging.

2 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1199 Sampling Procedures and Tables for Inspection by Attributes

AS 1365 Tolerances for Hot-rolled and Cold-rolled Unalloyed Low Carbon Steels (Coils and Cut Lengths)

AS 1399 Guide to AS 1199, Sampling Procedures and Tables for Inspection by Attributes

AS 1517 Tinplate and Blackplate
Part 1—Sheet
Part 2—Coil

AS 1524 Cylindrical Tinplate Cans with Friction Closures

AS 1525 Tinplate Cans with Threaded Closures

AS 1834 Tin-lead and Other Tin-based Solder Alloys

AS 1866 Wrought Aluminium and Aluminium Alloy Extruded Rod, Bar, Solid and Hollow Shapes for General Engineering Purposes

AS 2278 Metal Aerosol Containers—Classification, Filling and Testing

AS 2354 Hermetically Sealed Metal Cans for Food and Drinks—Terminology and Determination of Dimensions and Capacity

AS 2355 Hermetically Sealed Round Cylindrical Metal Cans for Food and Drinks—Capacities and Dimensions

AS 2400 SAA Packaging Code
Part 1—Glossary of Packaging Terms

AS XXXX Double Seams for Tinplate Cans for Heat Processed Foods*

3 DEFINITIONS. For the purpose of this standard, the definitions given in AS 2400, Part 1 apply.

4 MATERIALS.

4.1 Aluminium.

4.1.1 *General.* Aluminium used for metal cans and closure members is normally alloyed with other elements to obtain the desired formability characteristics required for manufacturing cans (see AS 1866).

4.1.2 *Alloys.* The most common alloys (Aluminium Development Council of Australia description) used are as follows:

(a) 1000 series, such as 1080 and 1100, high purity for impact extruded cans and collapsible tubes which require softer metal with a high degree of formability.

(b) 3000 series, particularly 3004, general purpose work hardening magnesium/manganese alloy used for drawn and ironed cans.

(c) 5000 series, e.g. 5082 and 5352, magnesium higher strength alloys for can ends and drawn and drawn-redrawn cans.

Work hardening, non heat-treated alloys are available in a series of tempers ranging from the soft or annealed state up to a fully hard temper.

4.1.3 *Form and coatings.*

(a) Aluminium for can manufacture is supplied in sheet or coil form and is normally ordered by mass or area in the alloy, thickness and temper.

(b) Aluminium cans are generally lined internally with an organic coating to protect the metal from corrosion by the product and provide commercially acceptable shelf life.

(c) An external coating is usually applied for decorative purposes and to improve mobility of the can through high speed filling lines. Such a coating has merit in reducing the risk of loss from secondary spoilage.

(d) Metal sheet for drawn and drawn-redrawn cans and can ends is coated prior to the forming operation, the coating also acting as a partial lubricant. Drawing and ironing, and impact extrusion on the other hand involve rather severe fabrication which organic coatings have not as yet been formulated to withstand. These cans are coated and decorated after the forming operations.

4.2 Tinplate.

4.2.1 *General.* Tinplate consists of a cold-reduced, mild (low carbon) steel sheet base, which has been coated with a thin layer of tin on both surfaces.

The only method of tinplate manufacture used in Australia is through the electrodeposition of tin on the blackplate base, hence electrolytic tinplate.

Tinplate is available in various thicknesses, widths, lengths and tin coatings. For specific order dimensions and coatings the supplier should be consulted.

It can be supplied in sheet or coil form and for sheets, lengths range from 460 mm to 1020 mm (see AS 1517, Parts 1 and 2).

4.2.2 *Rolling direction.* In the manufacture of three-piece can bodies, whether round, square or oblong, it is customary to order tinplate so that the rolling direction is parallel to the can circumference to maintain good body shape and improve flanging. For end stock, rolling direction is immaterial and should not be specified.

* In course of preparation.