Australian Standard®

SAA PACKAGING CODE

Part 13—TENSIONAL STRAPPING

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 25 June 1983 and published on 5 September 1983.

The following interests are represented on Committee PK/25:

Adhesives and Sealants Manufacturers Association
Agricultural and Veterinary Chemicals Association of Australia
Ansett Airlines of Australia
Australian Institute of Packaging
Bureau of Steel Manufacturers of Australia
Canmakers Institute of Australia
Confederation of Australian Industry
Department of Defence
Department of Primary Industry
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Printing and Allied Trades Employers Federation of Australia
Railways of Australia Committee
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Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

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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 information and assistance on the use of tensional strapping. Since tensional strapping has many and varied applications, no detailed guidance can be given as the individual circumstance will dictate the type and strength of strapping used. Companies or organizations specializing in this field may be relied upon to assist the prospective user of tensional strapping.

Strapping materials referred to in this standard are either manufactured in Australia or are available to the Australian market.

The materials referred to are manufactured specifically for use as tensional strapping. Safety and security are most important considerations in the selection of a system, therefore potential users are cautioned against the use of other materials, e.g. manufacturer's reject, faulty strapping, off-cut from slitting lines, previously used strapping materials or products not intended for use as tensional strapping.

Tensional strapping may be used as part of a system for load restraint.

Attention is drawn to the fact that tensional strapping must not be used as part of a lifting system unless specifically approved by the appropriate Regulatory Authority.

The wording in this standard 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.

The SAA Packaging Code has been divided into 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	Wooden Containers
8	Textile Bags, Sacks and Wrappings
9	Metal Containers
10	Cushioning Materials
11	Cordage
12	Adhesive Closing and Sealing Tapes
13	Tensional Strapping*
14	Adhesives for Packaging
15	Glass Containers
16	Transparent Cellulose Films, Plastic Films, Metal Foils and Flexible Laminates
17	Plastics
18	Use of Desiccants in Packaging
19	Packaging for Airfreight*
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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PART 13—TENSIONAL STRAPPING

1 SCOPE. This standard provides guidance on the selection and use of metallic and non-metallic tensional strapping. The term metallic strapping covers flat band strapping and wire of round, oval or flat section. Non-metallic strapping covers weftless tapes and extruded thermoplastic tapes.

2 GENERAL. Tensional strapping is applied to packages by suitable tools and machines, and in most instances tied or sealed while under tension. It may be applied to wooden containers, crates, solid and corrugated fibreboard boxes, cases, bundles, bales, palletized and unitized loads, to manufacturing processes, and as safety factors in internal handling.

Tensional strapping when applied correctly is an integral part of the container or package. Some reasons for this are as follows:

(a) It reinforces and strengthens packages, protecting them against the hazards of transportation, thus assisting in ensuring safe arrival at destination.

(b) It allows economies to be effected in container constructions and on other packaging materials.

(c) It renders the contents of the package less liable to pilferage.

(d) It may be used as a method of closure.

(e) It may be used to secure unit loads.

(f) It makes loads solid and rigid, safe to stack higher in warehouse.

(g) It makes bales denser, more stable and compact.

(h) It secures product on skids or pallets for ease in handling and transporting.

In addition, certain conditions experienced in handling and transit require the use of strapping as an additional safeguard, e.g. load restraint.

3 MATERIALS.

3.1 Steel Strapping. Flat steel strapping is generally available in two forms, viz flat cold-rolled strip and flat hot-rolled strip.

Flat cold-rolled strip is commonly produced in the following two grades:

(a) Low carbon material usually suitable for light to medium duty applications.

(b) Medium carbon, heat-treated strip which usually has the strength and toughness consistent with heavier duty applications, including those requiring greater shock resistance than is available with the low carbon material.

Both these cold-rolled materials usually have a painted and waxed finish.

Flat hot-rolled strapping is a medium to high carbon material, usually with an as-rolled finish. It is commonly used for applications requiring high shock resistance.

Flat steel strapping is available in a variety of widths ranging from 9 mm up to 50 mm and thicknesses ranging from 0.25 mm up to 1.5 mm. Packaging and coil sizes of flat strapping vary with the type and size of material. Detailed information on these aspects is available from the supplier.

Table 1 shows the tensile properties of steel strapping. Table 3 shows the available surface finishes related to the types of steel strapping.

3.2 Other Metallic Strapping. Other metallic strapping of flat section may be produced from materials such as aluminium, copper, brass, stainless steel and alloyed metals.

Usually these strappings are required for specific purposes. Whenever possible their exact application, its requirements and limitations should be specified. Assistance should be sought from specialist organizations on critical applications.

3.3 Wire Strapping Wire strapping may be round, oval or flat in section. Its finish may be galvanized, copper or natural.

However, galvanized round wire is most commonly used; oval and flat section wires are generally of special manufacture and are now seldom required or encountered.

Galvanized steel wire for tying and baling is available in the following four types:

(a) High tensile box tying wire, a medium carbon steel wire in a heat treated condition and normally produced with a standard galvanized coating.

(b) Soft tying wire, a low carbon steel wire normally with a galvanized finish.

(c) High tensile tying wire, a medium/high carbon steel wire in a heat treated condition with a galvanized coating.

(d) Agricultural baling wire, a low carbon steel wire in an annealed condition. Finish is natural or oiled. It may be used through automatic baling machines.

Other wires which are used for special applications such as preformed or fabricated baling ties are of special manufacture. They are produced to comply with a particular specification or requirement.

NOTE: This is usually a matter for negotiation between user and manufacturer.

Coil size, winding pattern and packaging of wire strapping varies with each type of product. Details are available from suppliers within the industry.

Table 2 shows the mechanical properties of wire strapping.