

Packaging code —

Section 10: Metal containers —

Subsection 10.1 Tins and cans

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Packaging and Freight Containers Standards Policy Committee (PKM/-) to Technical Committee PKM/561, upon which the following bodies were represented:

- Engineering Equipment and Materials Users' Association
- Metal Packaging Manufacturers' Association
- Ministry of Defence
- Paintmakers' Association of Great Britain Ltd.

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Foreword

This Subsection of BS 1133 which has been prepared under the direction of the Packaging and Freight Containers Standards Policy Committee, supersedes clauses 1 to 12 of BS 1133-10:1966. BS 1133-10:1966 is withdrawn.

BS 1133 was originally issued in December 1943, primarily to give guidance on the packaging of Service and other Government supplies. In practice, however, the code was used not only by Government departments and contractors, but also by civilian packers and accordingly it was amended to suit commercial requirements.

The Parts were later issued separately and new Sections were added as necessary. Since Section 10 covers many different types of packaging it was decided to subdivide it into a number of separately published Subsections.

This Subsection, Subsection 10.1, provides information on tins and cans made from tinplate and aluminium.

The packaging code now consists of the following Sections all of which are published separately with the exception of Sections 1 to 3 which are published in one volume.

- *Sections 1 to 3: Introduction to packaging;*
- *Section 4: Mechanical aids in package handling;*
- *Section 5: Protection against spoilage of packages and their contents by micro-organisms, insects, mites and rodents;*
- *Section 6: Temporary protection of metal surfaces against corrosion (during transport and storage);*
- *Section 7: Paper and board wrappers, bags and containers;*
- *Subsection 7.1: Wrapping papers;*
- *Subsection 7.2: Bags and envelopes;*
- *Subsection 7.3: Cartons and boxes;*
- *Subsection 7.4: Fibreboard drums;*
- *Chapter 7.5: Fibreboard cases;*
- *Subsection 7.6: Moulded pulp packaging;*
- *Subsection 7.7: Composite containers;*
- *Section 8: Wooden containers;*
- *Section 10: Metal containers;*
- *Subsection 10.1: Tins and cans;*
- *Subsection 10.2: Metal drums;*
- *Subsection 10.3: Metal collapsible tubes;*
- *Section 12: Methods of protection against shock (excluding cushioning devices);*
- *Section 13: Twines and cords for packaging;*
- *Section 14: Adhesive closing and sealing tapes;*
- *Section 15: Tensional strapping;*
- *Section 16: Adhesives for packaging;*
- *Section 18: Glass containers and closures;*
- *Subsection 1: Terminology;*
- *Section 19: Use of desiccants in packaging;*
- *Section 21: Regenerated cellulose film, plastics films, aluminium foil and flexible laminates;*
- *Section 22: Packaging in plastics containers.*

Section 9 “*Textile bags, sacks and wrappings*”, Section 11 “*Packaging felt*”, Section 17 “*Wicker and veneer baskets*” and Section 20 “*Packaging for air freight excluding livestock*” were withdrawn as obsolete.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 14, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Subsection of BS 1133 provides basic information on the various types of tins and cans.

NOTE 1 British Standards relevant to tins and cans are listed in Appendix A.

NOTE 2 The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this Subsection of BS 1133 the definitions given in BS 3130-4 and BS 6966-1 and BS 6966-2 apply.

3 General

Tins and cans form one type of light gauge metal containers, which are defined as rigid containers made of metal with a maximum nominal material thickness of 0.49 mm. In general tins and cans are made from material no greater than 0.33 mm thick and have a maximum capacity of 10 litres¹⁾.

The customary distinction between the use of the word “can” for food containers and “tin” for other containers is not universal and for all practical purposes the two words are synonymous.

There are three distinct groups of containers:

- a) open-top cans;
- b) general use cans or tins;
- c) aerosol cans.

Tins and cans can readily be fabricated in various shapes and sizes. They are light for economical handling; readily opened and when required re-closed; impervious to air, light and moisture and can be decorated for appearance and product protection. They are inherently strong and, when manufactured in the appropriate material thickness, give adequate protection to their contents.

Suppliers of dangerous goods need to be aware of statutory and international requirements relevant to the journey to be undertaken. Tins and cans intended to contain substances or articles which are classified as dangerous for transport should either:

- 1) bear the appropriate UN certification marking; or
- 2) possess the physical attributes set out in the relevant regulations and/or supporting approved codes of practice.

BS 1133-1 to BS 1133-3 contain more information on the transport of dangerous goods.

4 Materials

4.1 General

Tinplate (a term used in this standard to cover the various forms of tin mill products) and aluminium (together with certain of its alloys) are the basic materials used in the manufacture of cans. Under normal conditions of storage and use, these materials are suitable for surface treatments such as lacquering and printing. In the appropriate quality they are suitable for shaping operations and assembly work.

Shaping operations include stamping, drawing, ironing and bending. Aluminium may also be extruded.

Assembly work covers the mechanical forming of joints, which may be untreated or treated with adhesives or leak resistant gaskets. Tinplate can be soldered or welded.

4.2 Tinplate

4.2.1 General

There are three basic tin mill products; the word “tinplate” is commonly used as a generic term to include all three although this is not strictly correct.

The base material is common to all three products; a continuous coil of low carbon steel which is rolled to the required thickness. After heat treatment (annealing) and, if required, surface treatment, the material is available in coil form or cut into individual sheets.

The three products are as follows.

- a) Electrolytic tinplate: the base material is coated with tin applied by electrodeposition.
- b) Electrolytic chromium/chromium oxide coated steel (ECCS): the base material is electroplated with a chromium/chromium oxide coating.
- c) Blackplate: the base material is not coated but the surface may be oiled or otherwise treated.

The choice of material is dependent on technical and economic requirements.

Each of these products is available in two types of base material.

- 1) Single reduced (SR) tin mill products which have a base material that has been reduced to the desired thickness by cold reduction in a cold reduction mill and subsequently annealed and temper rolled.
- 2) Double reduced (DR) tin mill products which have a base material that has had a second cold reduction after annealing.

¹⁾ Litres are denoted by L throughout this standard.