

Glass bottles for carbonated soft drinks —

Part 1: Specification for 750 ml and 1 litre multi-trip bottles

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Cooperating organizations

The Packaging and Freight Containers Standards Committee, under whose direction this British Standard was prepared, consists of representatives from the following:

Association of Drum Manufacturers	Food Manufacturers' Federation Incorporated*
British Bag Federation	General Council of British Shipping
British Fibreboard Packaging Association	Glass Manufacturers' Federation*
British Food Manufacturing Industries Research Association	Institute of Packaging
British Paper and Board Industry Federation (PIF)	Institute of Trading Standards Administration*
British Stationery and Office Products Federation	Institution of Production Engineers
Chemical Industries Association*	Metal Packaging Manufacturers' Association
Collapsible Tube Manufacturers' Association	Ministry of Defence
Department of Trade Paper, Printing, Publishing, Services and Distribution	Oil Companies Materials Association
Department of Transport	Paintmakers' Association of Great Britain Ltd.
	Soap and Detergent Industry Association
	Timber Packaging and Pallet Confederation
	Timber Research and Development Association

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the Technical Committee entrusted with the preparation of this British Standard:

Association of the British Pharmaceutical Industry	National Association of Cider Makers
Brewers' Society	National Association of Soft Drinks Manufacturers
British Soft Drinks Council	Pira (The Research Association for the Paper and Board, Printing and Packaging Industries)
Campden Food Preservation Research Association	Process Plant Association
Consumer Standards Advisory Committee of BSI	Scotch Whisky Association
Dairy Trade Federation	Scottish Association of Soft Drinks Manufacturers
Department of Health and Social Security	Wine and Spirit Association of Great Britain
Department of Trade	Technical expert
Honey Importers and Packers Association	
Milk Marketing Board	

This British Standard, having been prepared under the direction of the Packaging and Freight Containers Standards Committee, was published under the authority of the Executive Board and comes into effect on 30 September 1981

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The following BSI references relate to the work on this standard:

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Foreword

This Part of this British Standard has been prepared under the direction of the Packaging and Freight Containers Standards Committee, at the request of the Glass Manufacturers' Federation and the National Association of Soft Drink Manufacturers.

The control of capacity is a statutory requirement as stipulated in the Measuring Container Bottles (EEC Requirements) Regulations 1977 (UK Statutory Instrument 1977 No. 932) which implements EEC Directive 75/107. The method of assessing compliance is given in full in the EEC Directive 75/107 on the approximation of the laws of Member states relating to bottles used as measuring containers.

NOTE The design and dimensions of the neck finish shown in Figure 3 are based on glass container finish reference GF 301 prepared by the Glass Manufacturers' Federation, 19 Portland Place, London W1N 4BH.

Further Parts of this standard will cover other capacities of multi-trip bottles.

This British Standard calls for the use of substances and/or procedures that may be injurious to health if adequate precautions are not taken. It refers only to technical suitability and in no way absolves the user from statutory obligations relating to health and safety at any stage of manufacture or use. In particular, attention is drawn to the tests for internal pressure resistance and thermal shock resistance.

An amendment to this Part of this British Standard, which makes certain existing performance requirements more stringent and introduces new requirements for inspection and annealing, was the outcome of initial work on criteria concerning safety aspects of glass containers for carbonated soft drinks. This work is continuing and it is anticipated that certain clauses in this Part of this British Standard will be superseded by further British Standards concerning safety aspects once this work has been completed.

NOTE Additional background information can be found in *Packaging in glass* by Moody, B. Revised ed. London: Hutchinson Benham, 1977.

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 and ii, pages 1 to 10, 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 Part of this British Standard specifies the design and dimensions, neck finish, capacity, internal pressure resistance, verticality, thermal shock resistance, materials, markings, inspection and annealing requirements for glass bottles for carbonated soft drinks of 750 ml and 1 litre nominal capacity intended for multi-trip use as measuring containers. The bottles are designed for a carbonation level not exceeding 4.5 volumes (9 g of carbon dioxide per litre), measured at 20 °C and 1 bar ¹⁾ pressure.

Gauges for measuring dimensions, together with methods of test for capacity, internal pressure resistance, verticality, and thermal shock resistance, are also specified.

2 Reference

The title of the publications referred to in this standard is listed on the inside back cover.

3 Definitions

For the purposes of this Part of this British Standard the following definitions apply.

3.1

carbonation level

the number of volumes of carbon dioxide gas dissolved in one volume of liquid, measured at 20 °C and 1 bar pressure. Alternatively, it can be expressed in grams of carbon dioxide per litre

3.2

filling level

the distance from the top of the neck finish to the centre of the meniscus measured on the centre line of the bottle

3.3

internal pressure resistance

the amount of internal pressure that the bottle can withstand for 60 s without breaking

NOTE This property was referred to in previous standards as "bursting strength".

3.4

multi-trip bottle

a bottle having strength characteristics that enable it to perform a number of trips

3.5

vacuity

the free space left above the liquid in a sealed container. It is expressed as a percentage of the nominal volume of the liquid

3.6

verticality

the horizontal deviation of the centre of the bore entrance from a vertical line through the centre of the base when the bottle is standing on a horizontal surface (For the method of measurement, see 13.3.)

3.7

shift

a continuous period of eight hours

4 Material

The bottles shall be made from white-flint soda-lime glass.

5 Bottle design

The bottle designs shall be as shown in Figure 1 and Figure 2.

The glass distribution shall be as uniform as possible.

The approximate mass of glass shall be as follows:

750 ml nominal capacity bottles	560 g
1 litre nominal capacity bottles	715 g

6 Dimensions

6.1 General. The bottle dimensions shall be as shown in Figure 1 or Figure 2, as appropriate.

Untoleranced dimensions are for mould-making purposes only.

6.2 Measurement of body diameter.

The toleranced body diameters (at the shoulder and the base, see Figure 1 and Figure 2) shall be measured by means of GO, NO-GO gauges, using a ring gauge for the maximum diameter, and a gap gauge with a 50 mm wide anvil for the minimum diameter.

6.3 Measurement of neck finish diameter. The diameter of the neck finish shall be measured using a Parnaby gauge as shown in Figure 5, in which each engaging surface subtends an angle of 36°.

7 Capacity

7.1 Capacity at filling level. The capacity at filling level, when tested in accordance with 13.1, shall be as follows:

750 ml nominal capacity bottles	750 ± 10 ml
1 litre nominal capacity bottles	1 000 ± 10 ml

Sampling shall be in accordance with 12.2.

7.2 Filling level. The filling level shall be as shown in Figure 1 or Figure 2, as appropriate.

¹⁾ 1 bar = 10⁵ N/m² = 100 kPa.