

Specification for

Non-refillable plastics aerosol dispensers up to 1000 mL capacity

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/562, upon which the following bodies were represented:

- Association of the British Pharmaceutical Industry
- British Aerosol Manufacturers' Association
- British Compressed Gases Association
- British Pest Control Association
- British Plastics Federation
- British Steel Industry
- Camping and Outdoor Leisure Association
- Consumer Policy Committee of BSI
- Cosmetic, Toiletry and Perfumery Association Limited
- Department of Trade and Industry (Consumer Safety Unit, CA Division)
- Health and Safety Executive
- Institute of Trading Standards Administration
- Liquefied Petroleum Gas Industry Technical Association (UK)
- Metal Packaging Manufacturers' Association
- Society of Cosmetic Scientists

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Foreword

This British Standard, originally prepared at the request of the British Aerosol Manufacturers' Association, has now been revised under the direction of the Packaging and Freight Containers Standards Policy Committee to include plastics aerosol dispensers up to 1 000 mL maximum brimful capacity and to add requirements for containers closed as in the filling process. It supersedes BS 5597:1978 which is withdrawn.

The revised standard is primarily concerned with ensuring that the filled aerosol dispenser is safe in respect of pressure performance and integrity throughout its intended life, rather than with providing detailed specifications for materials and methods of construction. Specific requirements are included for the pressure and impact resistance of the unfilled container, as made by the container manufacturer, and the selection and testing of aerosol dispensers to meet anticipated service requirements in terms of pressure resistance, impact resistance and compatibility with contents. Criteria are established in regard to the closing of the aerosol dispenser and there is a requirement that every filled aerosol dispenser is subjected to a pressure test as an integral part of the manufacturing process.

The standard has been divided into sections in order to clarify the responsibility for compliance with the requirements specified for unfilled containers and filled aerosol dispensers respectively.

Certain characteristics of plastics, such as chemical resistance, permeation and creep are fundamentally different from those of other materials used for containers, such as metal and glass. As a wide range of products may be packed in plastics aerosol dispensers, it is a requirement of the standard that appropriate type tests are carried out to ensure that the treatment of the aerosol dispenser and any effects due to the contents are not such as to bring the performance of the filled aerosol dispenser below any of the requirements of this standard.

All plastics containers are subject to some degree of permeation, the extent depending upon the constituents of the contents and the type of plastic used. The rate of permeation is affected by temperature, and therefore long term storage tests have to be carried out under time and temperature conditions to realistically simulate conditions appropriate to the market. Any changes in formulation, container shape or the polymer type used for the container, require further long term storage tests to reassess performance.

Furthermore, plastics aerosol dispensers will exhibit some creep, the magnitude of which is a function of time, temperature, internal pressure, the shape and wall thickness of the container and the polymer type used. This characteristic of plastics should be taken fully into account in the design of such containers and in assessing the safety of aerosol dispensers in storage, transport and use.

Attention is drawn to the need to check legal requirements, both those relating to aerosol dispensers in general and those which may relate to specific contents. Current legal requirements in relation to aerosol dispensers specify pressures in bars and this unit is therefore retained in this standard.

NOTE Because of the need to ensure safety in use it is important that a suitable scheme of process and quality control is adopted to verify that both unfilled and filled containers comply with the performance requirements specified.

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 8, 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.

Section 1. General

1 Scope

This British Standard specifies requirements for materials, performance and marking for non-refillable plastics aerosol dispensers up to 1 000 mL maximum brimful capacity, pressurized by liquefied, dissolved or compressed propellant gases.

The maximum equilibrium gauge pressure at 55 °C of the contents is restricted to 23 bar¹⁾ for group 1 containers and to 13.5 bar for group 2 containers (see 2.7 and 2.8).

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

2 Definitions

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

2.1

aerosol dispenser

a dispenser, incorporating an aerosol valve, holding a product kept under pressure greater than atmospheric by means of a propellant, and from which the product is discharged when the valve is opened. It is intended to be discarded when exhausted and not to be refilled

2.2

aerosol valve

a mechanical device, the operation of which permits the controlled emission of the product from the aerosol dispenser in a predetermined manner

NOTE The working parts are mounted in an aerosol valve cup or in a valve ferrule which is sealed on to a container.

2.3

(maximum) brimful capacity

the total capacity of a container without a closure in millilitres

2.4

unfilled container

a container at the end of the manufacturing operations carried out by the container manufacturer

2.5

container closed as in the filling process

a sealed unfilled container fitted with an aerosol valve cup or valve ferrule in which is mounted an aerosol valve, i.e. as prepared for filling

2.6

closure

a component which seals the aerosol dispenser

NOTE This may or may not incorporate the aerosol valve.

2.7

group 1 containers

containers having a maximum brimful capacity not exceeding 500 mL

2.8

group 2 containers

containers other than those covered by group 1, having a maximum brimful capacity not exceeding 1 000 mL

2.9

lot

a collection of containers of a single type, manufactured under essentially the same conditions and at essentially the same time, from which a sample is to be drawn and inspected to determine conformance with the acceptability criteria

NOTE This may differ from a collection of containers designated as a lot for other purposes, e.g. production, shipment.

2.10

equilibrium gauge pressure

the gauge pressure of an aerosol dispenser as filled with the contents in equilibrium at a specified temperature

2.11

type testing

a test, or series of tests, indicating whether an aerosol dispenser, made to a unique specification and design, meets the appropriate requirements of this standard

2.12

creep

the slow deformation of a stressed material

2.13

intended life

the period over which the aerosol is intended to be usable, as determined by the marketer in relation to the nature of the contents and the intended market

NOTE The intended life is normally at least 18 months.

3 Materials

Containers shall be made from plastics, combinations of plastics or composite plastics materials.

4 Filling volume

The total liquid (together with any solid) contents at a temperature of 55 °C shall not occupy more than 90 % of the internal volume of the closed aerosol dispenser.

¹⁾ 1 bar = 10⁵ N/m² = 100 kPa.