

Flexible intermediate bulk containers —

**Part 1: Specification for flexible
intermediate bulk containers designed
to be lifted from above by integral or
detachable devices**

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Committees responsible for this British Standard

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- British Plastics Federation
- British Polyolefin Textiles Association
- Chemical Industries Association
- Department of Industry (National Engineering Laboratory)
- Flexible Intermediate Bulk Container Association
- Health and Safety Executive
- National Materials Handling Centre
- Paintmakers Association of Great Britain Ltd
- Pira (the Research Association for the Paper and Board, Printing and Packaging Industries)
- Tape and Webbing Manufacturers' Association

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Foreword

This British Standard, published under the direction of the Packaging and Freight Container Standards Committee, has been prepared at the request of the National Engineering Laboratory and the Chemical Industries Association.

This British Standard takes no account of the particular requirements relating to materials, construction and performance that would need to be applied to intermediate bulk containers used for the conveyance and storage of substances deemed hazardous in safety legislation.

Thermoplastic materials used for flexible intermediate bulk containers, in common with most thermoplastic materials, are adversely affected by exposure to ultraviolet radiation, but these effects may be mitigated by the addition of suitable inhibitors.

This Part deals mainly with requirements applicable to the complete flexible intermediate bulk container. It is intended that a further Part will cover the resistance to ultraviolet radiation of materials used in the construction of flexible intermediate bulk containers.

A recommended format for a statement of conformity with this standard is given in Appendix F.

Appendix G gives general guidance for users of flexible intermediate bulk containers.

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 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 British Standard specifies material, construction and design requirements, together with type tests and type test performance requirements for single-trip and multi-trip intermediate bulk containers manufactured from flexible materials to contain non-hazardous solid materials in powder or granular form and designed to be lifted from above by integral or detachable devices.

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

flexible intermediate bulk container (FIBC)

a container manufactured from flexible materials having a capacity of not more than 3 m³ and/or a gross mass when filled of not more than 3 000 kg, designed to be lifted from above by integral or detachable devices

2.2

single-trip flexible intermediate bulk container

a FIBC designed and intended to be used for one filling and one discharge only

2.3

multi-trip flexible intermediate bulk container

a FIBC designed and intended to be used for more than one filling and more than one discharge

2.4

FIBC type

FIBCs of like design, manufactured using identical materials and methods of construction, to the same nominal cross-sectional dimensions

NOTE Within a type the design vertical dimension may vary and the diameter of any discharge spout may be reduced from the original design dimension. The presence or absence of a liner does not constitute a change of type.

2.5

safe working load (SWL)

the maximum load which the FIBC should carry in service, as stated by the manufacturer

2.6

type test

a test or series of tests directed towards approval of a FIBC type, conducted to determine whether the FIBC meets the requirements of this standard

3 Materials, construction and design

3.1 Materials. All materials shall, after complete immersion in water for not less than 24 h retain at least 85 % of the tensile strength measured after conditioning to equilibrium at 67 % r.h. or less. Tensile strength shall be measured by the BS method of test appropriate to the material used.

NOTE FIBCs may be manufactured from sheet and/or woven materials. The properties of the materials may be modified by suitable additives, e.g. to improve the exposure life and strength and also to reduce the effect of static electricity.

3.2 Construction. All stitched seams and joints shall be locked off and/or back sewn or a minimum 20 mm tail provided. All sewing threads shall be of man-made fibre.

3.3 Design. The FIBC shall be designed so that the maximum design height of fill shall not exceed the minimum base width or diameter by more than the ratio of 2 : 1.

NOTE Inner liners may be provided.

4 Performance

NOTE Attention is drawn to the requirements of the Factories Act 1961, Section 26 and associated legislation. Any rings, links, hooks, shackles or swivels forming part of the integral lifting gear of the FIBC should be individually proof tested to twice their safe working load and thoroughly examined by a competent person. A suitable form which may be appropriate is Factories Act Form F97.

4.1 Testing. The FIBC type shall be subjected to four type tests as follows:

- a) top lift (Appendix A and Appendix B);
- b) cyclic top lift (Appendix C);
- c) stacking (Appendix D);
- d) drop impact (Appendix E).

One specimen of the FIBC type shall be submitted for each test.

4.2 Selection of FIBCs for test. Where the FIBC type covers a range of capacities the FIBC selected for the type tests shall be that whose mass, when filled to the recommended filling level with the specified test contents, most closely corresponds to the stated SWL.

4.3 Top lift

4.3.1 When the FIBC is tested as described in Appendix A or Appendix B (see 4.3.2), using a test load of SWL × 5 for single-trip FIBCs or SWL × 6 for multi-trip FIBCs, there shall be:

- a) no leakage of contents;
- b) no breakage of any of the lifting devices to the extent that any lifting device ceases to support its load.

When tested with a liner fitted the latter shall not protrude beyond the outer surface of the FIBC except through the closure(s) where this is a design feature; such liner protrusions through the closure(s) shall not contain any contents.

4.3.2 The method in Appendix A shall be used to test FIBCs designed solely for multi-point lifting and so marked by the manufacturer.

The method in Appendix B shall be used to test FIBCs designed for single-point lifting.

4.4 Cyclic top lift

4.4.1 When the FIBC is tested as described in Appendix C using the appropriate test sequence in C.4 there shall be:

- a) no leakage of contents;
- b) no breakage of any of the lifting devices to the extent that any lifting device ceases to support its load.

When tested with a liner fitted the latter shall not protrude beyond the outer surface of the FIBC except through the closure(s) where this is a design feature; such liner protrusions through the closure(s) shall not contain any contents.

4.5 Stacking. When the FIBC is tested as described in Appendix D at a test load of $SWL \times 4$, applied for not less than 30 s, there shall be no leakage of contents.

4.6 Drop impact. When the FIBC, filled to its SWL, is tested as described in Appendix E, using a test height of 500 ± 10 mm, there shall be no leakage of contents.

5 Marking

The FIBC shall be durably marked by means of a permanently attached label or other means with the following data:

- a) name and address of the manufacturer/supplier;
- b) manufacturer/supplier's reference (which shall be unique to any one type);
- c) number of this British Standard, i.e. BS 6382-1¹⁾;
- d) date of manufacture (month and year);
- e) safe working load, i.e. kg, single-trip and/or kg, multi-trip;
- f) instructions on the method of lifting.

¹⁾ Marking BS 6382-1 on or in relation to a product is a claim by the manufacturer that the product has been manufactured in accordance with the requirements of the standard. The accuracy of such a claim is therefore solely the manufacturer's responsibility. Enquiries as to the availability of third party certification to support such claims should be addressed to the Director, Quality Assurance Division, British Standards Institution, Maylands Avenue, Hemel Hempstead, Herts, HP2 4SQ in the case of certification marks administered by BSI or to the appropriate authority for other certification marks.