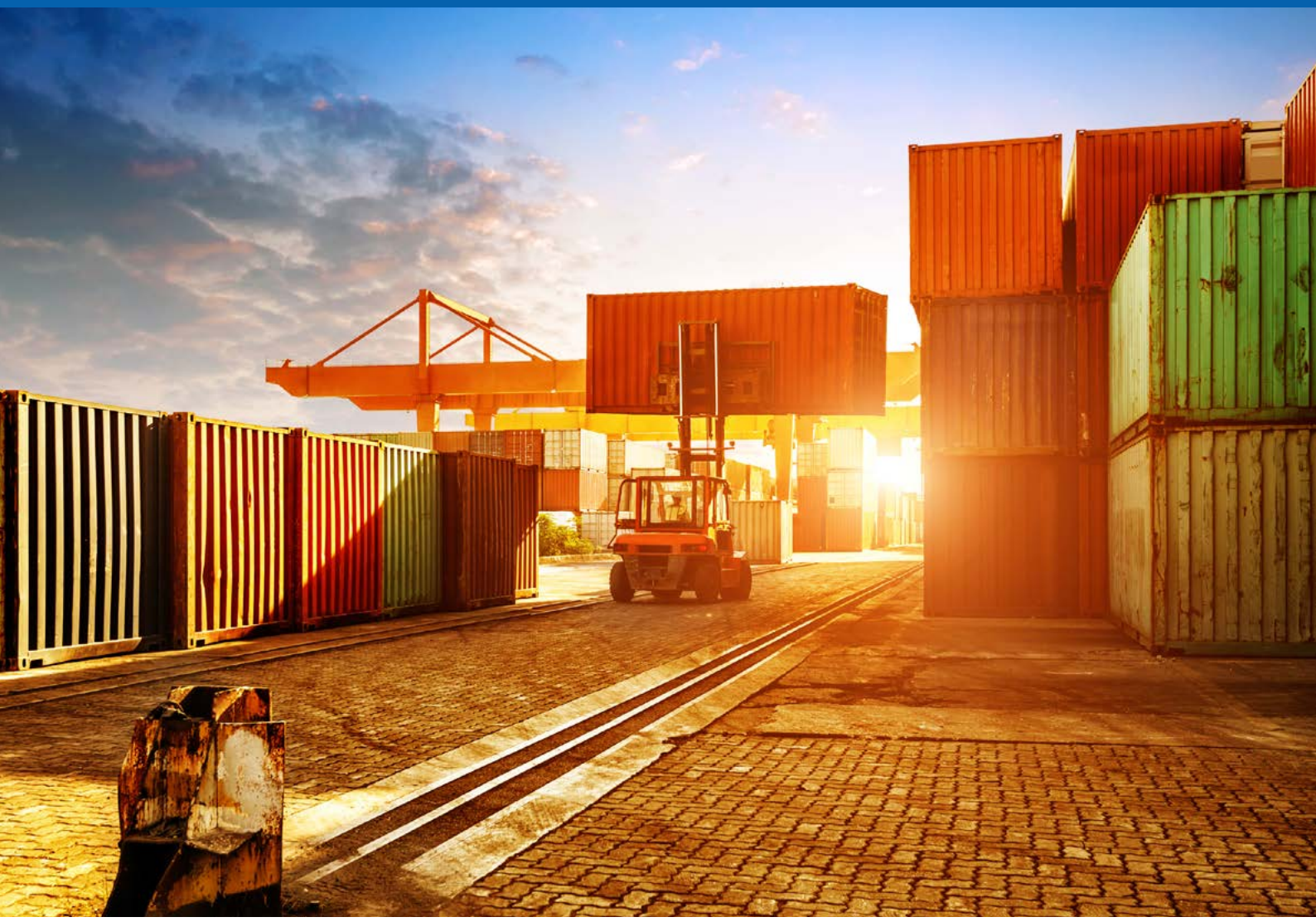
PAS 1008:2014

Specification for the performance and testing of a single-use flexitank



CONTAINER OWNERS ASSOCIATION

bsi.

Publishing and copyright information

ISBN 978 0 580 81197 5

ICS 55.180.10; 55.140; 83.140.10

Publication history

First published May 2014

Contents

Foreword

This PAS was commissioned by the Container Owners Association (COA) on behalf of a group of flexitank companies. Its development was facilitated by BSI Standards Limited and it was published under licence from The British Standards Institution. It came into effect on 31 May 2014.

Acknowledgement is given to Chris Thornton, the COA, as the technical author, and the following organizations that were involved in the development of this PAS as members of the steering group:

- Association of American Railroads (AAR)
- British Valve and Actuator Association (BVAA)
- China Container Industry Association (CCIA)
- CINS
- COA Flexitank Division
- Container Owners Association (COA)
- Federation of Oils, Seeds and Fats Associations (FOSFA)
- Geosynthetic Institute
- International Cargo Handling Co-ordination Association (ICHCA)
- International Labour Organization (ILO)
- International Maritime Organization (IMO)
- TT Club Mutual Insurance Ltd
- TÜV SÜD Rail GmbH

Acknowledgement is given to the following organizations that funded this PAS and provided technical input in its development.

- BLT Flexitank Industrial
- Braid Logistics
- CD FLEXI-Valve
- Environmental Packaging Technologies
- Flexpack
- Full-Pak
- Liquatrans
- PacTec
- Philton Polythene Converters
- Qingdao LAF Packaging
- Sun Flexitanks
- Trans Ocean Bulk Logistics/Hillebrand Group

Acknowledgment is also given to the members of a wider review panel who were consulted in the development of this PAS.

This PAS is not to be regarded as a British Standard. It will be withdrawn upon publication of its content in, or as, a British Standard.

The PAS process enables a specification to be rapidly developed in order to fulfil an immediate need in industry. A PAS may be considered for further development as a British Standard, or constitute part of the UK input into the development of a European or International Standard.

Information about this document

Product certification/inspection/testing. Users of this PAS are advised to consider the desirability of third-party certification/inspection/testing of product conformity with this PAS. Users seeking assistance in identifying appropriate conformity assessment bodies or schemes may ask BSI to forward their enquiries to the relevant association.

Assessed capability. Users of this PAS are advised to consider the desirability of quality system assessment and registration against the appropriate standard in the BS EN ISO 9000 series by an accredited third-party certification body.

Test laboratory accreditation. Users of this PAS are advised to consider the desirability of selecting test laboratories that are accredited to BS EN ISO/IEC 17025 by a national or international accreditation body.

Use of this document

It has been assumed in the preparation of this PAS that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this PAS are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

Commentary, explanation and general informative material is presented in italic type, and does not constitute a normative element.

Requirements in this standard are drafted in accordance with *The BSI guide to standardization – Section 2: Rules for the structure, drafting and presentation of British Standards*, subclause **J.1.1**, which states, "Requirements should be expressed using wording such as: 'When tested as described in Annex A, the product shall ...'". This means that only those products that are capable of passing the specified test will be deemed to conform to this standard.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a PAS cannot confer immunity from legal obligations.

0 Introduction

0.1 What is a flexitank?

A flexitank is a large bladder with valve(s) that is designed to fit inside a general purpose (GP) freight container [1)] and is used for the transport of liquids. Flexitanks can be constructed from polyethylene, polyethylene blends and polyvinyl chloride (PVC), but other materials can also be used.

0.2 What is a flexitank system?

While a flexitank is a single entity, it operates as part of a system which includes the flexitank, restraining system and a GP freight container. It might also include some ancillary equipment used inside the GP freight container.

NOTE 1 *The GP freight containers used are usually standard dry 20 ft (6 m) units, but other sizes can also be used.*

NOTE 2 *Ancillary equipment comprises any material that contributes to the flexitank system's performance.*

0.3 Objective of PAS 1008

The main objective of PAS 1008 is to provide a framework for the manufacture of flexitanks to a high quality, such that they can be used to transport liquids safely without leaking and without causing permanent damage to the GP freight container.

This is achieved through setting minimum requirements for:

a) the material properties of the flexitank film and, where fitted, the outer sleeve;

b) the leak tightness of the loading/discharging valve(s);

c) the flexitank system's resistance to an impact.

The performance of the flexitank system is assessed by means of a rail impact test. Material testing is performed to demonstrate that minimum requirements for the material properties are met and maintained, and that the material specification is the same as assessed in the rail impact test. Valve testing is to demonstrate that the valve is able to withstand operating pressures without leaking.

0.4 Using PAS 1008

PAS 1008 is for use by flexitank manufacturers in the manufacture and testing of flexitanks.

The following parties will also benefit from the outcomes of this PAS:

- shippers and cargo owners;
- flexitank operators;
- haulage companies;
- forwarders and non-vessel owning freight container operators;
- shipping lines;
- rail operators;
- freight container leasing companies;
- insurance companies and protection and indemnity (P&I) clubs;
- the general public.

[1)] A "GP freight container" is also known as a "shipping container", "standard container", "dry cargo container", "ISO container", "cargo container", among others.

1 Scope

This PAS specifies requirements for a single-use flexitank used for the intermodal transport of a liquid commodity in a general purpose (GP) freight container. It is applicable to single-layer and multilayer flexitanks made from polyethylene [2], polyethylene blends and polyvinyl chloride (PVC). It is applicable to flexitanks capable of carrying a commodity with a maximum mass of ≤24 000 kg and with a maximum volume of ≤24 000 L.

It specifies requirements for:

a) the material properties of the flexitank film and, where fitted, the outer sleeve;
b) the leak tightness of the loading/discharging valve(s);
c) the flexitank system's resistance to a rail impact defined as a 2*g* (gravitational unit) retardation or acceleration force;
d) the provision of flexitank information.

It describes a method for testing the leak tightness of the loading/discharging valve(s).

It also describes a method of determining the flexitank's suitability for intermodal transport by means of a rail impact test of the flexitank when installed in a GP freight container together with its restraining system and any other ancillary equipment.

This PAS does not cover requirements or test methods for multi-use flexitanks or flexitanks used for storage.

This PAS only covers flexitanks for use in GP freight containers and not those used in other types of freight containers, such as reefers.

This PAS does not cover compatibility testing of the commodity with the flexitank film.

NOTE 1 *The flexitank manufacturer might need to carry out compatibility testing to determine whether a flexitank is suitable for carrying a specific commodity. The compatibility of the flexitank and commodity depends on the chemical and physical properties of both the flexitank film and the commodity.*

This PAS does not provide guidance on the operation of a flexitank.

NOTE 2 *Recommendations on the operation of the flexitank system are given in COA's publication,* Code of practice for flexitanks *[1].*

[2] Polyethylene encompasses polythene.