

Specification for

Controlled storage and packaging of vulcanized rubber and rubber products

UDC [678.004.4]:001.4:006.3/.8:620.1

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Rubber Standards Committee (RUM/-) to Technical Committee RUM/35, upon which the following bodies were represented:

- British Rubber Manufacturers' Association
- British Structural Bearings Manufacturers' Association
- Building Employers' Confederation
- Concrete Society
- Department of the Environment (Building Research Establishment, Princes Risborough Laboratory)
- Department of Transport (Highways)
- Flexible Roofing Association
- Institute of Medical Laboratory Sciences
- Institution of Structural Engineers
- Malaysian Rubber Producers' Research Association
- Ministry of Defence
- Royal Society of Chemistry

This British Standard, having been prepared under the direction of the Rubber Standards Committee was published under the authority of the Board of BSI and comes into effect on 31 July 1989

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First published January 1963
First revision July 1989

The following BSI references relate to the work on this standard:
Committee reference RUM/35
Draft for comment 85/42989 DC

ISBN 0 580 17316 X

Amendments issued since publication

Amd. No.	Date of issue	Comments
7554	May 1993	Indicated by a sideline in the margin

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Foreword

This British Standard has been prepared under the direction of the Rubber Standards Committee. It is a revision, in specification form, of the recommendations of BS 3574:1963, which is now withdrawn.

Many rubber products and components are stored for long periods before being put into circulation, and thus it is important they are stored in conditions that minimize unwanted changes in properties. Such changes may result from degradation, in which case they may include excessive hardening, softening, cracking, crazing and other surface effects. Other changes may be caused by deformation, contamination or mechanical damage.

In preparing this revision the requirements of different users and the multiplicity of rubber types and products have been factors of major consideration. It is recognized that some rubbers are more susceptible than others to deterioration caused by such factors as heat, light, ozone, oxygen and humidity. Exposure to these factors should therefore be minimized in order to extend storage life and to do so a system of storage control, proper packaging and periodic inspection becomes necessary.

A system of recording, for the proper maintenance of storage and inspection data, is included, to assist in verifying that the provisions of this standard are maintained in association with common elements associated with product specifications and their verification through the conducting of statistically significant methods of test.

Further guidance can be found, to supplement the information contained in this standard, in BS 5750, BS 5760, BS 6716 and BS 2846.

In this standard it is specified that rubber products and components are to be stored away from causes of deleterious influences such as ozone and radiation. Methods for measuring concentrations or intensities of these are not within the scope of this standard.

Recommendations are included in appendix A for the inspection and testing of specific products.

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.

1 Scope

This British Standard specifies requirements for the inspection, recording procedures, packaging and storage of vulcanized rubber and/or products, assemblies or components containing rubber made from vulcanized or thermoplastic rubbers, prior to them being put into circulation.

It is applicable to both solid and cellular rubber. It is subject only to the requirements or recommendations of other British Standard product specifications in which details of storage requirements for specific products are given.

The requirements for packaging form an integral part of the controlled storage procedure, as well as providing means of identifying the material or product.

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

2 Definitions

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

2.1 rubber

a generic term for rubber that has undergone vulcanization and/or conversion into a finished product

NOTE This standard is not intended to cover raw rubber in bale, liquid or particulate form.

2.2 initial storage period

the maximum period, starting from the time of manufacture, for which a vulcanized rubber or rubber product, appropriately packaged, may be stored under specified conditions before a sample needs to be inspected or retested. For vulcanized rubber and vulcanized rubber products the time of manufacture is the time of cure

2.3 extension storage period

the period for which a vulcanized rubber or rubber product, appropriately packaged, may be stored after the initial storage period before further inspection and retesting is necessary

2.4 storage life

the maximum period of time that a vulcanized rubber or rubber product, appropriately packaged, may be stored, after which time it is regarded as unserviceable for the purposes for which it was originally manufactured

NOTE The storage life of a rubber product is influenced by its shape and size as well as by its composition, with thick products usually undergoing less change due to degradation than thinner ones.

2.5 assembly

any product or component containing more than one element, one or more of which is made of rubber

3 Classification of rubber types according to their relative susceptibility to deterioration

3.1 General

Unless otherwise specified in the product specification, rubber and rubber products shall be classified (for the purposes of storage) in terms of their relative susceptibility to deterioration as follows.

a) Group A: rubbers with moderate susceptibility to deterioration by ageing, as listed in Table 1.

The following additional rubbers shall be classified as Group A.

- 1) All new rubbers until their storage capabilities have been established.
- 2) All thermoplastic rubbers until their storage capabilities have been established.
- 3) Any products that cannot be classified as Group B or Group C rubbers.

b) Group B: rubbers with low susceptibility to deterioration by ageing as listed in Table 2.

c) Group C: rubbers which are highly resistant to deterioration by ageing, as listed in Table 3.

NOTE This classification is based upon the practices of Government departments and the aerospace industry. In adopting this classification attention is drawn to the following:

- a) resistance to deterioration can be influenced by compounding ingredients other than the type of base rubber;
- b) products can undergo changes during storage other than those caused by ageing of the rubber.

3.2 Blends and composites

A blend of two or more rubbers of different groups shall be classified as the group of the rubber(s) forming more than 50 % of the blend. If two rubbers are in equal proportions the blend shall belong to the group having the higher susceptibility to deterioration. A composite article containing components made out of different rubbers shall be also regarded as belonging to the group of the rubber considered most susceptible to deterioration.