

Controlled storage of vulcanized rubbers for use in aerospace applications

ICS 49.025.40

Committees responsible for this British Standard

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- British Hydromechanics Research Group (BHR)
- British Narrow Fabrics Association (BNFA)
- British Rubber Manufacturers' Association Ltd (BRMA)
- UK Defence Standardization
- Society of British Aerospace Companies (SBAC)

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Foreword

This British Standard has been prepared by Technical Committee ACE/25. It supersedes BS 3F 68:1977, which is withdrawn. It was first published in 1968 under the direction of the Aerospace Standards Committee at the request of the Society of British Aerospace Companies Ltd.

This new edition of BS F 68 incorporates technical changes only. It does not represent a full review or revision of the standard, which will be undertaken in due course.

This standard takes into account accumulated experience since it was first published, reflects changes in the grouping of rubbers and in their storage periods, and refers to the inclusion of stockists in the distribution chain and the steps to be taken to secure agreement on the division of the storage period.

This new edition extends the range of products considered.

Although vulcanized rubbers made to well-controlled specifications, properly packaged and stored under good conditions, will remain in a fully serviceable condition for many years, nevertheless, some rubbers are more susceptible than others to degradation by such factors as heat, light, ozone, oxygen, humidity, etc. Because of these factors a system of storage control is necessary to ensure that such rubbers are issued in a serviceable condition.

For the convenience of users of this standard, the grouping of rubbers specified in BS 2F 68:1973 is given in Annex C.

NOTE This standard is not intended to be used as a design document.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its 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 3 to 9 and a back cover.

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1 Scope

1.1 This British Standard specifies requirements for the storage, and inspection during storage, of vulcanized rubber, whether in the form of materials or as components to be used for aerospace purposes. These requirements also apply to items made from cellular rubber.

1.2 The requirements of this standard do not apply to rubber components contained within mechanical assemblies, e.g. pumps and valves.

NOTE In such cases the recommendations of the assembly supplier for exercising the assembly and lifing of the rubber need to be sought and applied.

1.3 The storage periods quoted apply only if the storage conditions specified in Annex A are complied with and if the packaging complies from the date of cure with the requirements of BS F 69, as far as is practicable, making allowance for subsequent manufacturing operations.

1.4 The storage period comprises the whole period of existence of the rubber from the date of cure. This period will generally be divided between manufacturing (including assembly) and storage (e.g. in manufacture, by stockists, by aircraft constructors and operators) and the division of this period should be mutually agreed between the interested parties.

1.5 These requirements are based on the classification of rubbers into groups as defined in Clause 3.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS F 69, *Specification for packaging and identification of vulcanized rubber items*.

Defence Standard 81-39, *Packaging of rubber hoses, plastics hoses, and hose assemblies*¹⁾.

3 Classification of rubbers

Rubbers are classified into three groups of differing sensitivity to ageing as follows:

- a) Group A rubbers with a high sensitivity to ageing as listed in Table 1;
- b) Group B rubbers with an intermediate sensitivity to ageing as listed in Table 2;
- c) Group X rubbers with a low sensitivity to ageing as listed in Table 3.

Any new rubbers introduced which are not listed in Table 1, Table 2, or Table 3 shall be considered as belonging to group A until their storage capabilities have been established.

Table 1 — Group A rubbers

Abbreviation ^a	Chemical name ^a	Common name
NR	Isoprene rubber, natural	Natural rubber
BR	Butadiene rubber	Polybutadiene
IR	Isoprene rubber, synthetic	Polyisoprene
AU	Polyester urethane rubber	Polyurethane ^b
EU	Polyether urethane rubber	Polyurethane ^b
SBR	Styrene-butadiene rubber	SBR
PNR	Polynorbornene rubber	Polynorbornene
PS	Polysulfide rubber	Polysulfide

^a In accordance with BS ISO 1629 (with the exception of PNR and PS).

^b Owing to the extreme susceptibility of some types of polyurethane to degradation by moisture, special care and/or inspection in storage may be required.

¹⁾ Available from: UK Defence Standardization, Kentigern House, 65 Brown Street, Glasgow G2 8EX.