

Cotton thread for aerospace purposes

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee ACE/22, Cords, ropes and threads for aerospace purposes, upon which the following bodies were represented:

Linen Sewing Threads Manufacturers' Association
Ministry of Defence — UK Defence Standardization
Society of British Aerospace Companies Ltd.

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Foreword

This British Standard, prepared under the direction of Technical Committee ACE/22, is one of a series for textiles of a quality suitable for aerospace purposes. It supersedes BS 4F 58:1990 which is withdrawn.

NOTE The previous edition, BS 4F 58:1990, differed from the earlier edition primarily in that only one thread was specified.

This new edition updates references and improves nomenclature in line with other standards in the same series.

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.

WARNING NOTES

This standard calls for the use of substances and/or test procedures that may be injurious to health if adequate precautions are not taken. It refers only to technical suitability and in no way absolves either the supplier or the user from statutory obligations relating to health and safety at any stage of manufacture or use.

This standard specifies pentachlorophenyl laurate (PCPL) as the only approved rotproofing treatment for aerospace textiles. Alternative treatments are under development, and this standard will be updated to delete PCPL as soon as an approved alternative treatment for aerospace textiles is available.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 2, an inside back cover and a back cover.

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1 Scope

This British Standard specifies the requirements for a cotton thread, for use primarily as safety ties and break threads, for aerospace purposes.

NOTE The latest revision of an Aerospace Standard is indicated by the prefix number.

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 381C, *Specification for colours for identification, coding and special purposes.*

BS 1932-2, *Testing the strength of yarns and threads from packages — Methods for determination of knot strength and loop strength.*

BS 2087-1, *Preservative treatments for textiles — Specification for treatments.*

BS F 100, *Procedure for inspection and testing of textiles for aerospace purposes.*

BS EN ISO 2060:1995, *Textiles — Yarn from packages — Determination of linear density (mass per unit length) by the skein method.*

BS EN ISO 2061, *Textiles — Determination of twist in yarns — Direct counting method.*

3 General

3.1 Requirements from BS F 100

In addition to the requirements specified in Clause 4, Clause 5, Clause 6, Clause 7 and Clause 8 of this standard the requirements and tests given in the latest edition of BS F 100 as specified in Table 1, shall apply.

Table 1 — General requirements (given in BS F 100)

Section of BS F 100	Section title	Requirements and tests
1	General	All requirements
2 ^a	Quality requirements	Requirements for dyed textiles except those related to fabric intended for coating Requirements for freedom from corrosive impurities (see BS F 100, Section 4)
3	Physical tests	Tests for breaking strength and extension under force
4	Chemical tests	If required by BS F 100, Section 2: — test for conductivity of aqueous extract; — test for pH value of aqueous extract; — test for water soluble chloride; — test for water soluble sulfate.
^a It is not intended that BS F 100, Section 2 tests should be performed on each thread batch. The frequency of these tests should be agreed between the Quality Assurance Authority and the thread manufacturer, see BS F 100.		

3.2 Freedom from faults

The thread shall have uniformity of thickness, construction, and component ply tension so that there are no visually irregular twist faults.

The thread shall contain no thread knots.

NOTE Up to two laid-on ends per package are permitted.

3.3 Length per unit mass

The length per unit mass of thread shall be determined in accordance with BS EN ISO 2060:1995, Option 1.

4 Yarn

The thread shall be manufactured from combed cotton yarn.

5 Construction and properties

5.1 The construction and properties of the finished thread shall conform to the requirements of Table 2.

Table 2 — Construction and properties

Designation	Structure ^a	Minimum length per unit mass m/kg	Minimum average breaking strength N	Maximum strength N
60/2/3	Nominal tex/Turns per m 10 tex × 2S 1 350–1 650 × 3Z 530–650	13 180	13.3	20

^a The twist shall be determined in accordance with BS EN ISO 2061.

5.2 The direction of final twist shall be Z.

6 Finish

6.1 Condition of material

The thread shall be supplied scoured, dyed to BS 381C shade 539 and rotproofed with pentachlorophenyl laurate (PCPL) in accordance with BS 2087-1, normal process.

NOTE It is very important that the scouring process is thorough in order to remove surface acting agents and processing acids.

6.2 Finish

The thread shall have a soft finish.

Finishes which promote microbiological growth (e.g. starch or modified starch) shall not be applied.

7 Type test

7.1 General

The type test specified in 7.2 shall be carried out to the satisfaction of the quality assurance authority.

After initial satisfaction of the type test, no changes in respect of either the materials or processing conditions used shall be made without the type test being repeated to the satisfaction of the quality assurance authority.

The manufacturer's records of type tests shall be made available to the quality assurance authority on request.

7.2 Loop breaking strength

The thread shall have a minimum average loop breaking strength of 20 N when tested in accordance with BS 1932-2.

8 Identification

The thread shall be identified for ordering purposes by the number of this British Standard, i.e. "BS 5F 58".

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