

BRITISH STANDARDS INSTITUTION
 BRITISH STANDARDS HOUSE, 2 PARK STREET, LONDON, W.1

INCORPORATED BY ROYAL CHARTER
 Telephone: MAYFAIR 9000
 Telegrams: STANDARDS, LONDON, W.1.

BRITISH STANDARD SPECIFICATION FOR 1½ OZ COTTON FABRIC FOR AERONAUTICAL PURPOSES

FOREWORD

This British Standard, one of a series for textiles of a quality suitable for aeronautical purposes, replaces Ministry of Aviation Specification D.T.D. 418C. During the transfer minor changes only have been made to the technical requirements but the standard now provides for the fabric to be rot-proofed and stipulates dye fastness properties for fabric required in the dyed condition. Provision has also been made for the fabric to be identified by a code reference.

Metric equivalents of British units are given in the Appendix; the figures in British units are to be regarded as the standard.

This standard makes reference to the following British Standards:

- British Standard F. 100 Inspection and testing procedures for textiles for aeronautical purposes.
- B.S. 350 Conversion factors and tables.
- B.S. 947 Yarn count systems and their conversions.
- B.S. 1006 Method for the determination of fastness to daylight of coloured textiles.
- B.S. 2087 Chemical requirements for textiles treated by certain preservative processes.
- B.S. 2681 Method for the determination of colour fastness to water.

NOTE. In place of the customary, but incorrect, use of the pound as a unit force, the unit called a pound-force (abbreviation lbf) has been used in this standard. It is that force which, when acting on a body of mass one pound, gives it an acceleration equal to that of standard gravity.

SPECIFICATION

SCOPE

1. This British Standard specifies the requirements for 1½ oz cotton fabric for aeronautical purposes.

YARN

2. Cotton yarn* shall be used in the manufacture of the fabric.

MANUFACTURE

3. *a.* The weave shall be plain.
b. The fabric shall be uniformly woven.
c. The width of any part of the treated fabric shall be not less than that specified and shall not exceed that width by more than ½ inch.
d. The selvages shall be straight, even and well made, and shall have the same tension as the remainder of the fabric.

* 100s count has been found suitable for both warp and weft.

FINISH

4. The fabric shall be supplied as ordered:
a. Scoured.
b. Rot-proofed.

If rot-proofing is required this shall be stated in the contract or order and the fabric shall be treated with pentachlorophenyl laurate in accordance with B.S.2087.

- c.* Dyed.

If dyeing is required the colour shall be as stipulated in the contract or order: a Sulphur dye shall not be used. The fastness of the colour to light shall be not less than standard 5 when tested by the method described in B.S.1006 and the fastness of the colour to water, in respect of staining and of change of colour, shall be not less than rating 4 when tested by the method described in B.S. 2681 (Type tests).

CONSTRUCTION AND PROPERTIES

5. The treated fabric shall comply with the requirements of Table 1.

TABLE 1

Designation	Number of threads per inch		Maximum weight oz/sq yd	Minimum average breaking strength lbf per inch width	
	Warp	Weft		Warp	Weft
No. 418	104±2	104±2	1.6	26	26

Price 2/6 net

AIR POROSITY

6. *a.* Each finished piece of fabric shall be tested and shall have an average porosity of 42 ± 4 cu ft of air per sq ft per second. It is, however, very desirable that the average porosity of the fabric shall be as near as possible to the mean figure of 42 and that the variation between the individual readings should be as low as possible.

b. If the average porosity of the fabric is 36, 37, 47 or 48 cu ft of air per sq ft per second, two further series of readings of ten tests each shall be taken on the same piece, and the average of each series shall not be less than 36 and not greater than 48. Any individual reading included in the average of 36 shall not be less than 32 or greater than 40, and any individual reading included in the average of 48 shall be not less than 44 or greater than 52.

The proportion of such fabric shall not exceed 5 per cent for any delivery.

c. Results of tests recorded on control sheets shall provide adequate evidence that the production is stable and that the average level and variability meet the requirements of this British Standard.

FREEDOM FROM IMPURITIES

7. *a.* The amount of water extractable matter in the treated fabric shall not exceed 0.5 per cent.

b. The treated fabric shall contain not more than 0.1 per cent of water soluble chloride calculated as NaCl and not more than 0.25 per cent water soluble sulphate calculated as Na_2SO_4 ; alternatively, the conductivity of an aqueous extract shall not exceed 150 micromhos.

c. Each piece of treated fabric shall be spotted with aqueous solutions of the indicators bromo-cresol green and thymol blue and shall show a blue or greenish blue colour

with the former and a distinct yellow colour with the latter. The indicators shall be absorbed immediately on application.

FREEDOM FROM DEFECTS

8. The fabric shall be as free as possible from defects, to the satisfaction of the Inspector.

MAKE UP

9. The fabric shall be made up at full width on poles longer than the width of the fabric in continuous pieces without joins, rolled tightly and free from creases.

SAMPLING AND TESTING

10. *a.* Unless otherwise agreed with the Inspecting Authority, the selection of test samples and the tests for weight, breaking strength, air porosity, water extractable matter, water soluble sulphates, water soluble chlorides and conductivity of aqueous extract shall be in accordance with British Standard F.100.

b. For scoured fabric and for dyed fabric the requirements of Clause 7*b* above shall be applied at Type test frequency. For rot proofed fabric these tests are already required by B.S. 2087.

c. Tests designated 'Type tests' shall be dealt with as defined in Clause 2*c* of British Standard F.100.

IDENTIFICATION

11. The fabric shall be identified for ordering purposes by the number of this British Standard, together with the designation given in Table 1 and a reference to the finish required as set out in Clause 4.

For example, fabric required in rot-proofed condition and dyed blue-grey shall be identified as 'B.S.F.115/418/4b/4c blue-grey'.

APPENDIX

METRIC EQUIVALENTS OF BRITISH UNITS

British unit	Metric equivalent
1 inch	25.4 millimetres
1 yard	0.91 metres
1 ounce	28.35 grammes
1 pound	0.45 kilogrammes
1 thread per inch	3.94 threads per 10 centimetres
Yarn count (cotton)	$\frac{590.5}{\text{Yarn count}} = \text{Tex}$

The metric conversions are approximate. More accurate conversions should be based on the tables in B.S.350 'Conversion factors and tables', or B.S. 947 'Yarn count systems and their conversions'.

This British Standard, having been approved by the Aircraft Industry Standards Committee and endorsed by the Chairman of the Engineering Divisional Council, was published under the authority of the General Council of the Institution on 28th June, 1963.

The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

British Standards are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or editions.

The following B.S.I. references relate to the work on this standard:
Committee reference ACE/26. Draft for comment CT(ACE) 6792.