

NOTE.—The Institution desires to call attention to the fact that this Specification is intended to include the technical provisions necessary for the supply of the material herein referred to, but does not purport to comprise all the necessary provisions of a contract.

British Standards Institution.

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British Standard Specification for Aircraft Material.

LINEN SEWING THREAD.

1. **Description.** (a) The thread shall be made of flax fibre.
- (b) The weight of the yarn shall have been reduced by not less than 12½ per cent by boiling (see Appendix A).
- (c) The thread shall be satin finished.
- (d) The thread shall work satisfactorily on a sewing machine.

2. **Construction and Properties.** The details of construction and the properties of the thread shall comply with the requirements specified in the Table below. The breaking strength shall be determined by the method described in Appendix B.

Size of Thread	Turns per in.	Length per lb.	
		yd.	lb.
12s/3	6 to 8	1200 ± 60	25.0
18s/3	9 to 11	1800 ± 90	16.0
25s/3	10 to 12	2500 ± 125	12.0
30s/3	11 to 13	3000 ± 150	10.0
35s/3	12 to 14	3500 ± 175	8.0
40s/3	13 to 15	4000 ± 200	7.0
50s/3	14 to 16	5000 ± 250	6.0
60s/3	15 to 17	6000 ± 300	5.5

3. **Selection of Test Samples.** Where it can be shown that each size of thread in each consignment has been manufactured from similar quality yarn, a sample shall be selected from each size. In other cases the selection of samples shall be left to the discretion of the Inspector.

APPENDIX A.

Method for the Determination of the Degree of Boiling of Yarns.

The Inspector shall determine the degree of boiling from the Manufacturer's records where such records are available.

Where these records are not available the residual alkali solubility determined by the method described below shall not exceed 5.

A length of the thread weighing approximately 10 grammes shall be cut from the selected sample and divided into three approximately equal portions, "a," "b" and "c." These shall then be separately weighed in dry, stoppered, weighing bottles.

Portion "a" shall be added to 250 ml. of a boiling 5 per cent solution of Sodium Carbonate "A.R." contained in a 500 ml. conical flask. A reflux condenser shall then be attached and gentle boiling continued for 2½ hours. Portion "b" shall be boiled similarly in 250 ml. of distilled water.

At the end of the period of boiling the liquids shall be poured off from the threads through separate hardened filter papers in Büchner funnels about 6 inches diameter.

The threads shall be washed four times by decantation with 200 ml. of distilled water at about 70° C., the washings being passed through the filters, and shall then be transferred to their respective filters, washed three times with 200 ml. of hot distilled water and dried in a water oven for one hour. The washed threads along with any fragments of fibre detachable from the filter paper shall be transferred to their respective weighing bottles and dried in an oven at 105° C. for two hours. Portion "c" shall be dried in the same oven at the same time.

If A, B and C be the percentage losses calculated on the original weights of the first, second and third portions respectively, then the residual alkali solubility (R) of the yarns is given by

$$R = \frac{100}{100 - C} (A - B)$$

APPENDIX B.

Method for the Determination of Breaking Strength.

Five test pieces shall be cut from each sample and shall be soaked in water for two hours, after which the excess of adhering water shall be drained off. They shall then be fixed in an approved testing machine so that the length between the supports is not less than 10 inches. The rate of traverse shall be uniform and approximately 12 inches per minute.

This Specification having been approved by the Aircraft Industry Committee and endorsed by the Chairman of the Engineering Divisional Council, was published by the authority of the General Council of the Institution as a British Standard on 11th February, 1935.

NOTE.

In order to keep abreast of progress in the Industries concerned, the British Standard Specifications are subjected to periodical review.

Suggestions for improvements addressed to the British Standards Institution, 28 Victoria Street, London, S.W.1, will be welcomed at all times. They will be recorded and in due course brought to the notice of the Committees charged with the revision of the Specifications to which they refer.