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AEROSPACE MATERIAL SPECIFICATION

SAE AMS 3800A

Issued 1 JAN 1985
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Superseding AMS 3800

Submitted for recognition as an American National Standard

CLOTH, KNITTED, POLYAMIDE, HIGH TEMPERATURE RESISTANT
Reverse Jersey

This specification has been declared "NONCURRENT" by the Aerospace Materials Division, SAE, as of July, 1992. It is recommended, therefore, that this specification not be specified for new designs.

This cover sheet should be attached to the initial issue of the subject specification.

"NONCURRENT" refers to those materials which have previously been widely used and which may be required on some existing designs in the future. The Aerospace Materials Division, however, does not recommend these as standard materials for future use in new designs. Each of these "NONCURRENT" specifications is available from SAE upon request.

PREPARED UNDER THE JURISDICTION OF AMS COMMITTEE "CP".

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CLOTH, KNITTED, POLYAMIDE, HIGH TEMPERATURE RESISTANT
Reverse Jersey

1. SCOPE:

1.1 Form: This specification covers one type of polyamide fiber in the form of knitted cloth.

1.2 Application: Primarily for use as seat cushion covers in aircraft.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods

2.2 ASTM Publications: Available from Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM D123 - Definition of Terms Relating to Textiles

2.3 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Federal Specifications:

PPP-P-1133 - Packaging and Packing of Synthetic Fiber Fabrics

2.3.2 Federal Standards:

FED-STD-4 - Glossary of Fabric Imperfections
FED-STD-191 - Textile Test Methods

2.3.3 Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes

3. TECHNICAL REQUIREMENTS:

3.1 Material: The cloth shall be knitted from bright, non-melting aromatic polyamide fibers.

3.1.1 Denier and Filament: Yarn shall be 200 denier, 100 filament, determined in accordance with 4.5.1.

3.1.2 Color: Yarn shall be dyed Sage Green color as approved in accordance with 4.4.1.

3.1.3 Twist: The course and wale yarns used shall be twisted to a maximum of three turns per in. (25.4 mm).

3.1.4 Finish: Cloth shall be finished including application of a durable, antistatic finish (See 8.1) to meet the requirements of 3.2.

3.2 Properties: Cloth shall conform to the following requirements; tests shall be performed on the cloth supplied and in accordance with specified test methods insofar as is practicable:

3.2.1	Construction Wales, min Course, min	 24 28	FED-STD-191, Method 5070
3.2.2	Weight, min	7 oz per sq yd (0.240 kg/m^2)	FED-STD-191, Method 5041
3.2.3	Abrasion (cycles to destruction), min	1,000	FED-STD-191, Method 5302 1/
3.2.4	Bursting Strength Ball Method, min	150 lb 2/ (70 kg)	FED-STD-191, Method 5120
3.2.5	Stretch, max Wales Courses	 35% 70%	4.5.3

3.2.6 Set, max 4.5.3

Wales	5%
Courses	10%

1/ "0" grit emery paper, 3 psi (20 kPa), 2 lb (1 kg) load
2/ Fabric does not burst at 150 lb (70 kg) max on Scott tester

3.2.7 Width: Shall be as specified by purchaser.

3.3 Quality: Cloth, as received by purchaser, shall be evenly knitted, as free from foreign materials as commercially practicable, and free from imperfections detrimental to usage of the cloth.

3.3.1 Imperfections: Acceptability of each lot of cloth shall be based on defects listed in Table I.

TABLE I

CLASSIFICATION OF DEFECTS (1)

Defect	Classification Major	Minor
Any hole, cut, or tear	X	
Run or dropped stitch, end out	X	
Tuck stitch, pulled stitch, or needle streak		X
Mend	X	
Abrasion mark resulting from weak area (2)	X	
Thin or uneven cloth (2)	X	
Coarse or fine yarn (2)		X
Tight twist yarn		X
Slubs or gouts, more than twice the size of normal yarn		X
Knots extending above the surface of cloth		X
Kinks or untrimmed ends		X
Crease or wrinkle (embedded)		X

3.3.1 (Continued):

Defect	Classification Major	Minor
Stretch (stitch tension), knitting tension too tight or too loose	x	
Spot or stain	X	

(1) See ASTM D123 and FED-STD-4 for definition of terms.
(2) Clearly visible at normal inspection distance of 3 ft (1 m).

3.3.1.1 Defects shall be counted regardless of their proximity to each other except when two or more defects represent a single local condition of the cloth, in which case only the more serious defects shall be counted. A continuous defect shall be counted as one defect for each wale-wise yard or fraction thereof in which the defect occurs.

3.3.1.2 For overall examination, cloth shall be examined for defects listed below; each such defect shall be counted no more than once in each piece examined:

Objectionable odor
Overall uncleanness
Uneven knitting throughout the roll
Edges frayed, ravelled, curled, rolled, folded, scalloped, or uneven continuously or intermittently throughout the roll
Width less than minimum or more than maximum specified

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of cloth shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.6. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the cloth conforms to the requirements of this specification.

4.2 Classification of Tests: Tests to determine conformance to all technical requirements of this specification are classified as acceptance tests and as preproduction tests and shall be performed prior to or on the initial shipment of cloth to a purchaser, on each lot, when a change in material or processing, or both, requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.2.1 For direct U.S. Military procurement, substantiating test data and, when requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring activity, the contracting officer, or the request for procurement.

4.3 Sampling: Shall be as follows:

4.3.1 For Acceptance Tests: Each lot of cloth shall be visually examined as required below for quality (3.3) and sampled at random for all other tests; the number of determinations for each requirement shall be as specified in the applicable test procedure or, if not specified therein, not less than three.

4.3.1.1 A lot shall be all cloth made under essentially the same conditions, produced in a single production run, and presented for vendor's inspection at one time. An inspection lot shall not exceed 1000 lb (450 kg).

4.3.1.2 When a statistical sampling plan and acceptance quality level (AQL) have been agreed upon by purchaser and vendor, sampling shall be in accordance with such plan in lieu of sampling as in 4.3.1 and the report of 4.6 shall state that such plan was used.

4.3.1.3 Yard-by-Yard Examination of Cloth: Sample unit for this examination shall be one linear yard (one linear metre). Sample size shall be in accordance with MIL-STD-105, Inspection Level II. In each piece of cloth selected, an approximately equal number of yards (metres) comprising the sample shall be subject to examination. The defects found shall be identified and classified in accordance with Table I. Acceptance quality level (AQL) shall be not more than 2.5 major and 6.5 total defects per 100 units.

4.3.1.4 Overall and Dimensional Examination: Sample unit for these examinations shall be one roll. Examination shall be in accordance with MIL-STD-105, Inspection Level S-2, Acceptance Number zero. Minimum sample size shall be three rolls. If the lot contains less than three rolls, each roll shall be examined.

4.3.1.5 Samples for Testing: Sample unit shall be 5 yd (5 m). Sample size shall be as shown below:

Lot Size, yd (m)	Minimum Sample Size (Units)
1 to 800, inc1	3
Over 800 to 22,000, inc1	5
Over 22,000	8

4.3.1.5.1 The lot shall be unacceptable if any unit fails to meet any requirement specified.

4.3.2 For Preproduction Tests: As agreed upon by purchaser and vendor.

4.4 Approval:

4.4.1 Sample cloth shall be approved by purchaser before cloth for production use is supplied, unless such approval be waived by purchaser. Results of tests on production cloth shall be essentially equivalent to those on the approved sample cloth.

4.4.2 Vendor shall use ingredients, manufacturing procedures, processes, and methods of inspection on production cloth which are essentially the same as those used on the approved sample cloth. If necessary to make any change in ingredients, in type of equipment for processing, or in manufacturing procedures, vendor shall submit for reapproval a statement of the proposed changes in material or processing, or both, and, when requested, sample cloth. Production cloth made by the revised process shall not be shipped prior to receipt of reapproval.

4.5 Test Methods:

4.5.1 Yarn Test: Denier shall be determined as follows:

4.5.1.1 Measure a 900-mm length of yarn to the nearest millimetre.

4.5.1.2 Weigh the yarn sample in grams to the nearest 10 milligrams.

4.5.1.3 Calculate the denier (weight per length) as follows:

Denier = wt in g of 9000 m = wt of 900-mm sample x 10,000.

4.5.2 Cloth Tests:

4.5.2.1 Examination for Length:

4.5.2.1.1 Individual Rolls: Rolls shall be examined for gross length. Any gross length found to be less than the specified minimum length, or any gross length found to be more than 2 yd (2 m) below the gross length marked on the roll ticket, shall be considered as a defect with respect to length. The minimum sample unit shall be one roll. The number of rolls selected as a sample and the acceptance number shall be in accordance with 4.3.1.5 and 4.3.1.5.1.

4.5.2.1.2 Total Length in Sample: The lot size shall be unacceptable if the total of the actual gross lengths of rolls in the sample is less than the total of the gross lengths marked on the roll tickets.

4.5.3 Stretch and Set:

4.5.3.1 Test Specimen: Shall be rectangular in shape, 3 in. (75 mm) by not less than 9 in. (225 mm). The long dimension shall be parallel to the length (wales) of the cloth for length tests and parallel to the width (courses) for width tests. The specimen shall be taken no nearer to the selvage than 1/10 the width of the cloth. Two parallel lines, 3 in. (75 mm) apart shall be drawn at right angles to and centered on the long dimension of the specimen. In addition, a line shall be drawn parallel to the long dimension of the specimen and 1 in. (25 mm) in from either edge for properly aligning the specimen in the jaws.

4.5.3.2 Test Apparatus: Fig. 1 shows the test apparatus in which the specimen is held between two clamps. The design of the upper clamp shall be such that one gripping surface or jaw shall be an integral part of the rigid frame of the clamp. The face of the movable jaw shall measure not less than 1 in. (25 mm) by 5 in. (125 mm) with the long dimension perpendicular to the direction of the application of the load. The lower clamp shall have similar jaws not less than 2 in. (50 mm) by 4 in. (100 mm) which, when the weight is attached, shall weigh a total of 27 lb (12 kg). The jaws shall have smooth gripping surfaces, sufficiently flat and parallel to prevent slipping of the specimen during the test.

4.5.3.3 Procedure: The specimen shall be placed symmetrically in the clamps with the long dimension parallel to and the short dimension at right angles to the direction of application of load. Using the specified guidelines, the specimen shall be aligned 1 in. (25 mm) in from the outside edge of each jaw. The proper weight shall be added to ensure a total of 27 lb (12 kg) (including the weight of the lower jaws). The load shall be applied for 10 min. ± 0.1. The distance between the jaws shall be measured by a pair of dividers or other suitable instrument. The specimen shall then be removed from the apparatus and allowed to relax for 10 min. ± 1. The marks shall again be measured. The percent stretch and set shall be calculated as follows:

$$\% \text{ Stretch} = \frac{\text{Stretched length - original 3 in. (75 mm) length}}{\text{Original 3 in. (75 mm) length}} \text{ X } 100$$

$$\% \text{ Set} = \frac{\text{Relaxed length after 10 min. - original 3 in. (75 mm) length}}{\text{Original 3 in. (75 mm) length}} \text{ X } 100$$

4.6 Reports:

4.6.1 The vendor of cloth shall furnish with each shipment a report showing the results of tests to determine conformance to the requirements of this specification. This report shall include the purchase order number, AMS 3800, vendor's material designation, lot number, and quantity.

4.6.2 The vendor of finished or semi-finished parts shall furnish with each shipment a report showing the purchase order number, AMS 3800, contractor or other direct supplier of cloth, supplier's material designation, part number, and quantity. When cloth for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of cloth to determine conformance to the requirements of this specification and shall include in the report either a statement that the cloth conforms or copies of laboratory reports showing the results of tests to determine conformance.

4.7 Resampling and Retesting: If any specimen used in the above tests fails to meet the specified requirements, disposition of the cloth may be based on the results of testing three additional specimens for each original nonconforming specimen. Failure of any retest specimen to meet the specified requirements shall be cause for rejection of the cloth represented and no additional testing shall be permitted. Results of all tests shall be reported.

5. PREPARATION FOR DELIVERY:

5.1 Packaging and Identification:

5.1.1 Cloth shall be put up on rolls, full width, and shall be furnished in continuous pieces of at least 30 yd (30 m) in length, as specified in PPP-P-1133.

5.1.2 Each roll shall have a label or tag legibly marked with not less than the following information and attached in such a manner as to remain in place until all cloth has been removed from the roll:

CLOTH, KNITTED, POLYAMIDE, HIGH TEMPERATURE RESISTANT
AMS 3800
WIDTH _____
WEIGHT PER YARD (METRE) _____
MANUFACTURER'S DESIGNATION _____
QUANTITY _____
LOT NUMBER _____
ROLL NUMBER (If used) _____
DATE OF MANUFACTURE _____

5.1.3 Individual rolls shall be wrapped in a suitable protective film and packaged in an exterior shipping container in such a manner that the rolls, during shipment and storage, will be protected from exposure to moisture, weather, or any other normal hazard.