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AEROSPACE MATERIAL SPECIFICATION

AMS 3856

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Revised

CLOTH, UPHOLSTERY, FLAME RESISTANT

1. SCOPE:

1.1 Form: This specification and its supplementary detail specifications cover flame resistant cloth woven from various fibers.

1.2 Application: Primarily for use in upholstering aircraft seats.

1.3 Classification: This product shall be classified by material, type of weave, weight, and other properties as shown in the detail specifications.

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 American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM D2261 - Tearing Strength of Woven Fabrics by the Tongue (Single Rip) Method (Constant-Rate-of-Extension Tensile Testing Machine)
ASTM E662 - Specific Optical Density of Smoke Generated by Solid Materials

REAFFIRMED 10/91

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:

O-T-236 - Tetrachloroethylene (Perchloroethylene), Technical Grade
PPP-P-1133 - Packaging and Packing of Synthetic Fabric

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 Detail Specifications: The requirements for a specific cloth shall consist of all the requirements specified herein in addition to the requirements specified in the applicable detail specification. In case of conflict between the requirements of this specification and an applicable detail specification, requirements of the detail specification shall govern.

3.2 Material: Cloth shall be woven using the type or types of fiber and weave specified in the applicable detail specification.

3.3 Properties of Yarn: Shall be constructed of fiber material as specified in the applicable detail specification; supplier's certificate of compliance is acceptable for fiber identification.

3.4 Properties of Cloth: Shall be as specified in the applicable detail specification, determined in accordance with the following test methods:

Requirement	Test Method
Type Weave	Visual, See detail specification
Weight	FED-STD-191, Method 5041
Thread Count	FED-STD-191, Method 5050
Breaking Strength	FED-STD-191, Method 5104
Tearing Strength	ASTM D2261
Flame Resistance	FED-STD-191, Method 5903
Smoke Generation	ASTM E662

3.5 Quality: Cloth, as received by purchaser, shall be clean, evenly woven, and free from foreign materials and from imperfections detrimental to usage of the cloth.

3.5.1 Imperfections: Acceptability of each lot of cloth shall be based on defects defined in FED-STD-4 and as specified in Table I therein.

3.5.2 Yard-by-Yard Examination:

3.5.2.1 Examination: Each roll in the sample shall be examined on the face side only. When the total length of the roll does not exceed 100 yards (100 m), the entire length of the roll shall be examined. When the total length of the roll exceeds 100 yd (100 m), only 100 yd (100 m) shall be examined. All defects as defined in FED-STD-4, Section III, which are clearly noticeable at normal inspection distance of 1 yd (1 m) shall be scored and assigned demerit points as listed in 4.3.1.2.2.

3.5.2.1.1 Only course yarns that exceed twice the normal yarn diameter shall be scored.

3.5.2.1.2 Mixed filling (shade bar) shall be scored only when resulting from wrong ply, wrong twist in the yarn, or off-shade yarn. Due to the inherent natural (tan) shade differences of the novoloid fiber, any shade bars resulting from this condition shall not apply to AMS 3856/1.

3.5.2.1.3 Only knots and slubs which exceed the limits shown in Figure 1 of FED-STD-4 shall be scored.

3.5.2.2 Acceptance Criteria: No linear yard (metre) (increments of 1 yd (1 m) on the measuring machine) from any one roll within the sample shall be penalized more than four points. The lot shall be unacceptable if the points per 100 sq. yd. (100 m^2) of the total length examined exceeds 50 points. The lot shall also be unacceptable if the points per 100 sq yd (100 m^2) of two or more individual rolls exceeds 75 points. If no individual roll exceeds the point level, the lot shall be acceptable with respect to this characteristic. If one roll exceeds the point level, a second sample equal in size to the first shall be examined only for individual roll quality. The lot shall be unacceptable if one or more rolls in the second sample exceeds the point level.

3.5.2.3 Point Computation: Point computation for lot quality and individual roll quality shall be as follows:

3.5.2.3.1 Using Inch/Pound Units:

$$\frac{\text{Total points scored in sample} \times 3600}{\text{Width of Cloth, in.} \times \text{Total Length, yd Inspected}} = \text{Points per 100 sq yd}$$

3.5.2.3.2 Using SI Units:

$$\frac{\text{Total points scored in sample} \times 100{,}000}{\text{Width of Cloth, mm} \times \text{Total Length, m, Inspected}} = \text{Points per } 100\ m^2$$

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 4.5. 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 and the applicable detail 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 (3.5) 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 herein, not less than three.

4.3.1.1 Yarn Tests: Prior to weaving the cloth, the yarn shall be sampled for tests of 3.3. The lot size shall be expressed in lb (kg) and the sample unit shall be 500 yd (500 m) of the yarn. The lot shall be unacceptable if one or more sample units fail to meet any test requirements specified. The sample size shall be as follows:

Lot Size		Sample Size
Pounds	Kilograms	
Up to 1,000, incl	Up to 450, incl	3
Over 1,000 to 5,000, incl	Over 450 to 2,250, incl	5
Over 5,000	Over 2,250	7

4.3.1.2 Yard-by-Yard Examination of Cloth: The unit of cloth for this examination shall be 1 sq yd (1 m^2). The sample size shall be in accordance with the following:

Lot Size				Sample Size
Yards		Metres		(Number of Rolls)
Up to	800, incl	Up to	730, incl	2
Over 800 to	22,000, incl	Over 730 to	20,000, incl	3
Over	22,000	Over	20,000	5

4.3.1.2.1 Not more than one roll shall be taken from any shipping container unless the number of shipping containers in the lot is less than the required number of rolls, in which case all shipping containers shall be included in the sample.

4.3.1.2.2 Demerit Points: Demerit points shall be assigned as follows:

For defects 3 in. (75 mm) and under in any dimension	- 1 point
For defects over 3 to 6 in. (75 to 150 mm), incl in any dimension	- 2 points
For defects over 6 to 9 in. (150 to 225 mm), incl in any dimension	- 3 points
For defects over 9 in. (225 mm) in any dimension	- 4 points

4.3.1.2.2.1 The following defects, when present, shall be scored 4 points for each linear yd (linear m) in which they occur:

Baggy, ridgy or wavy cloth
Width less than specified
Uneven weaving

4.3.1.3 Cloth Tests: Sample unit shall be 5 continuous yd (5 continuous m) full width of the finished cloth. The lot shall be unacceptable if one or more units fail to meet any specified requirement.

4.3.1.4 A lot shall not exceed 22,000 yd (20,000 m) and may be packaged in small quantities under the basic lot approval provided lot identification is maintained.

4.3.1.5 When a statistical sampling plan and acceptance quality level (AQL) in accordance with MIL-STD-105 other than as specified herein, have been agreed upon by purchaser and vendor for testing other than quality (3.5), sampling shall be in accordance with such plan in lieu of sampling as in 4.3.1 and the report of 4.5.1 shall state that such plan was used.

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 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 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 procedure shall not be shipped prior to receipt of reapproval.

4.5 Reports:

4.5.1 The vendor of cloth shall furnish with each shipment a report showing the results of tests to determine conformance to the technical requirements of this specification and the applicable detail specification. This report shall include the purchase order number, AMS 3856 and the applicable detail specification number, vendor's material designation, lot number, quantity, and specified cloth weight.

4.5.2 The vendor of finished or semi-finished parts shall furnish with each shipment a report showing the purchase order number, AMS 3856 and the applicable detail specification number, contractor or other direct supplier of cloth, supplier's product identification, 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.

4.6 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: