

MIL-C- 83467 (USAF)
4 November 1975

MILITARY SPECIFICATION

CLOTH, FIRE RETARDANT AND FIRE RETARDANT TREATED, AIRCRAFT UPHOLSTERY

This specification is approved for use by all Departments
and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the requirements for
flame retardant cloths used in the upholstering of aircraft seats.

1.2 Classification. The cloth shall be of the following types
as specified (see 6).

- Type I - Novoloid/Aramid
- II - Aramid
- III - Fire retardant treated nylon

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on date of
invitation for bids or request for proposal, form a part of this
specification to the extent specified herein.

SPECIFICATIONS

Federal
PPP-P-1133

Packaging and Packing of
Synthetic Fiber

STANDARDS

NBS Technical Note 708, Dept. of Commerce, National
Bureau of Standards

FSC 8305

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Federal

FED-STD-4
FED-STD-191

Glossary of Federal Imperfections
Textile Test Methods

Military

MIL-STD-105

Sampling Procedures and Tables
for Inspection by Attributes

(Copies of specifications, standards, drawings and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

3. REQUIREMENTS

3.1 Material

3.1.1 Warp. For type I the yarns shall be singles and two ply, 50/50 staple fiber blend of aramid and novoloid, and two ply, 100% aramid. For type II the yarn shall be two ply, 100% aramid staple fiber. For type III the yarn shall be two ply, 100% nylon staple fiber.

3.1.2 Filling. For type I the yarn shall be singles and two ply, 50/50 staple fiber blend of aramid and novoloid. For type II the yarn shall be two ply, 100% aramid staple fiber. For type III the yarn shall be two ply, 100% nylon staple fiber.

3.2 Color. The color of type I shall be natural. (The novoloid fiber is a tan color). The color of types II and III shall be as designated by the procuring activity.

3.3 Physical requirements. The physical requirements of the finished cloth shall be as specified in Table I when tested as specified in 4.3.

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Table I. Physical requirements

Characteristics	Type I	Type II	Type III
Wt. (ozs./sq. yd.)	10.2 \pm 0.75	12.3 \pm 1.0	11.8 \pm 0.8
Yarns per inch (Warp and Filling) (minimum)	152	116	146
Breaking strength (minimum)			
Warp	200	250	350
Filling	170	250	350
Tearing Strength (lbs.) (minimum)			
Warp	25	25	75
Filling	35	25	75
Flame Resistance (Warp direction) ^{1/}			
Flame time, Seconds (maximum)	1	1	3
Glow time, seconds (maximum)	10	4	2
Char length, inches (maximum)	2	2	4
Smoke Generation	25	30	40
D (maximum) (4 minutes) (non-flaming exposure)			
M			

^{1/} For type III after 5 dry cleaning cycles

3.3.1 Weave. For type I the weave shall be a honeycomb or waffle type weave. For type II the weave shall be a plain weave. For type III the weave shall be a jacquard.

3.3.2 Width. Unless otherwise specified (see 6.2), the width shall be 54 inches inclusive of selvages.

3.4 Fire retardant finish. Type III shall be given a durable, non-toxic finish.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the

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performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements. 7-9

4.1.1 Certificate of compliance. Where certificates of compliance are submitted the Government reserves the right to check test such items to determine the validity of the certification.

4.2 Inspection. Sampling for inspection shall be performed in accordance with MIL-STD-105, except where otherwise indicated hereinafter.

4.2.1 Examination of the end item. Examination of the end item shall be in accordance with the provisions of 4.2.2.1 through 4.3.

4.2.1.1 Yard-by-yard examination. Each roll in the sample shall be examined on the face side only. When the total yardage in the roll does not exceed 100 yards, the entire yardage in the roll shall be examined. When the total yardage in the roll exceeds 100 yards, only 100 yards shall be examined. All defects as defined in Section III of FED-STD-4 which are clearly noticeable at normal inspection distance (3 feet) shall be scored and assigned demerit points as listed in 4.2.1.1.1 except as follows:

a. Only coarse yarns that exceed twice the normal yarn diameter shall be scored.

b. 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 type I.

c. Only knots and slubs which exceed limits shown in figure 1 of FED-STD-4 shall be scored.

No linear yard (increments of 1 yard on the measuring device of the

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inspection machine) from any one roll within the sample shall be penalized more than 4 points. The sample size shall be 20 rolls selected from 20 containers. The lot shall be unacceptable if the points per 100 square yards of the total yardage examined exceeds 50 points. The lot shall be unacceptable if the points per 100 square yards of two or more individual rolls exceeds 75 points. If one roll exceeds 75 points per 100 square yards a second sample of 20 rolls shall be examined only for individual roll quality examination. The lot shall be unacceptable if one or more rolls in the second sample exceeds 75 points per 100 square yards. Point computation for lot quality and individual roll quality shall be as follows:

$$\frac{\text{Total points scored in sample} \times 3600}{\text{Contracted width of cloth (inches)} \times \text{total yards inspected}} = \text{Points per 100 sq yds}$$

4.2.1.1.1 Demerit points. Demerit points shall be assigned as follows:

For defects 3 inches or less in any dimension - one point

For defects exceeding 3 inches, but not exceeding 6 inches
in any dimension - two points

For defects exceeding 6 inches, but not exceeding 9 inches
in any dimension - three points

For defects exceeding 9 inches in any dimension - four points

The following defects, when present, shall be scored four points for each yard in which they occur:

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

4.3 Testing of the end item. The methods of testing specified in FED-STD-191, wherever applicable as listed in Table II shall be followed. The physical and chemical values specified in Section 3,

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except where otherwise specified, apply to the results of the determinations made on a sample unit for test purposes as specified in the applicable test method. The sample unit shall be 5 continuous yards, full width, of the finished cloth. All test reports shall contain the individual values utilized in expressing the final result. The lot size shall be expressed in units of 1 yard. The lot shall be unacceptable if one or more units fail to meet any requirement specified. The sample size (number of sample units) shall be as follows:

<u>Lot size (yards)</u>	<u>Sample size</u>
800 or less	2
801 thru 22,000	3
22,001 and over	5

Table II - Test methods

<u>Characteristics</u>	<u>Requirement paragraph</u>	<u>Test method</u>
Fiber (Types I & II) Identification	3.1	<u>1/</u>
Yarn per inch	3.3	5050
Breaking strength	3.3	5104
Tearing strength	3.3	5134
Flame resistance	3.3	5903
Smoke Generation	3.3	NBS Technical Note 708

1/ Unless otherwise specified, a certificate of compliance shall be submitted and will be acceptable for the stated requirements.

5. PREPARATION FOR DELIVERY

5.1 Put-up and packaging. Put-up and packaging shall be level A or C as specified (see 6.2).

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5.1.1 Level A and C. The cloth shall be put-up and packaged in accordance with the applicable requirements of PPP-P-1133.

5.2 Packing. Packing shall be level A, B, or C as specified (see 6.2).

5.2.1 Levels A, B, and C. The cloth shall be packed in accordance with the applicable requirements of PPP-P-1133.

5.3 Marking. In addition to any special marking required by the contract or order, shipments shall be marked in accordance with PPP-P-1133.

6. NOTES

6.1 Intended use. The cloth covered by this specification is intended for use in the upholstering of aircraft seats.

6.2 Ordering data. Procurement documents should specify the following.

- a. Title, number and date of this specification.
- b. Type required.
- c. Selection of applicable levels of packaging to packing
(see 5.1 and 5.2).

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