

# AEROSPACE MATERIAL SPECIFICATION

**SAE** AMS3286

REV. F

Issued 1942-06  
Revised 1993-01  
Reaffirmed 2006-01  
Stabilized 2011-08

Superseding AMS3286E

Felt, Firm Pad, White  
100% Wool

## RATIONALE

This document has been determined to contain basic and stable technology which is not dynamic in nature.

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## 1. SCOPE:

### 1.1 Form:

This specification covers felted wool fibers in the form of sheets and rolls.

### 1.2 Application:

This product has been used typically for oil and grease retention where the felt is confined and compressed in assembly and for dust shields where conditions are not severe, but usage is not limited to such applications.

### 1.3 Safety - Hazardous Materials:

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

## 2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The applicable issue of referenced publications shall be the issue in effect on the date of the purchase order.

### 2.1 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM D 461 Testing Felt



## 2.2 U. S. Government Publications:

Available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-STD-2073-1 DOD Materiel, Procedures for Development and Application of Packaging Requirements

## 3. TECHNICAL REQUIREMENTS:

### 3.1 Material and Fabrication:

The product shall be made from white wool fibers built up by a suitable combination of mechanical work, chemical action, moisture, and heat, without spinning, weaving, or knitting, to produce a uniform well-felted product.

### 3.2 Properties:

The felt shall conform to the requirements shown in Table 1, Table 2, and 3.2.9. Tests shall be conducted on the felt supplied and in accordance with ASTM D 461, insofar as practicable; splitting resistance requirements apply only to felt 3/16 inch (4.8 mm) and over in thickness.

TABLE 1 - Properties

Paragraph	Property	Requirement
3.2.1	Tensile Strength, minimum	225 psi (1.55 MPa)
3.2.2	Splitting Resistance, minimum	8 pounds force per 2 inches (36 N/51 mm) width
3.2.3	Actual Wool Content, minimum	95%
3.2.4	Methyl Chloroform Soluble, maximum	2.5%
3.2.5	Water Soluble, maximum	2.5%
3.2.6	Combined Methyl Chloroform plus Water Soluble, maximum	3.0%
3.2.7	Ash Content, maximum	2.5%

3.2.8 Weight: Shall be shown in Table 2.



TABLE 2A - Weight, Inch/Pound Units

Nominal Thickness Inch	Weight Pounds per Square Yard	Nominal Thickness Inch	Weight Pounds per Square Yard
1/8	0.98 - 1.14	1/2	3.92 - 4.56
3/16	1.47 - 1.71	5/8	4.90 - 5.70
1/4	1.96 - 2.28	3/4	5.88 - 6.84
5/16	2.45 - 2.85	7/8	6.86 - 7.98
3/8	2.94 - 3.42	1	7.84 - 9.12

Table 2B - Weight, SI Units

Nominal Thickness Millimeters	Weight kg/m <sup>2</sup>	Nominal Thickness Millimeters	Weight kg/m <sup>2</sup>
3.2	0.53 - 0.61	12.7	2.13 - 2.47
4.8	0.80 - 0.93	15.9	2.66 - 3.09
6.4	1.06 - 1.24	19.0	3.19 - 3.71
7.9	1.33 - 1.55	22.2	3.72 - 4.33
9.5	1.59 - 1.86	25.4	4.25 - 4.95

3.2.9 Corrosion: Felt shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service, determined by a procedure agreed upon by purchaser and vendor. Discoloration of metal shall not be considered objectionable.

### 3.3 Quality:

Felt, as received by purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from imperfections detrimental to usage of the felt.



### 3.4 Sizes and Tolerances:

#### 3.4.1 Thickness: Standard thicknesses and limits of thickness shall be as shown in Table 3.

TABLE 3A - Thickness Limitations, Inch/Pound Units

Nominal Thickness Inch	Actual Thickness Inch	Nominal Thickness Inch	Actual Thickness Inches
1/8	0.105 - 0.145	1/2	0.462 - 0.538
3/16	0.165 - 0.211	5/8	0.581 - 0.669
1/4	0.224 - 0.276	3/4	0.700 - 0.800
5/16	0.284 - 0.342	7/8	0.819 - 0.931
3/8	0.343 - 0.407	1	0.938 - 1.062

TABLE 3B - Thickness Limitations, SI Units

Nominal Thickness Millimeters	Actual Thickness Millimeters	Nominal Thickness Millimeters	Actual Thickness Millimeters
3.2	2.67 - 3.56	12.7	11.73 - 13.67
4.8	4.19 - 5.36	15.9	14.76 - 16.99
6.4	5.69 - 7.01	19.0	17.78 - 20.32
7.9	7.21 - 8.69	22.2	20.80 - 23.65
9.5	8.71 - 10.34	25.4	23.83 - 26.97

#### 3.4.2 Width: Standard width shall be 72 inches (1.83 m).

### 4. QUALITY ASSURANCE PROVISIONS:

#### 4.1 Responsibility for Inspection:

The vendor of felt shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the felt conforms to the requirements of this specification.

#### 4.2 Classification of Tests:

##### 4.2.1 Acceptance Tests: Tests for tensile strength (3.2.1), splitting resistance (3.2.2), wool content (3.2.3), ash content (3.2.7), weight (3.2.8), quality (3.3), and sizes and tolerances (3.4) are acceptance tests and shall be performed on each lot.



4.2.2 Preproduction Tests: Tests for all technical requirements are preproduction tests and shall be performed prior to or on the initial shipment of felt to a purchaser, when a change in ingredients and/or processing requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.2.2.1 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, contracting officer, or request for procurement.

#### 4.3 Sampling and Testing:

Shall be in accordance with ASTM D 461.

4.3.1 For Acceptance Tests: Each lot of felt shall be 100% visually examined for quality (3.3) and sampled at random for all other tests, with the number of determinations for each requirement to 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 felt produced in a single production run under the same fixed conditions and presented for vendor's inspection at one time. An inspection lot shall not exceed 1000 linear yards (914 linear m).

4.3.1.2 When a statistical sampling plan has 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 4.5 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 felt shall be approved by purchaser before felt for production use is supplied, unless such approval be waived by purchaser. Results of tests on production felt shall be essentially equivalent to those on the approved sample.

4.4.2 Vendor shall use ingredients, manufacturing procedures, processes, and methods of inspection on production felt which are essentially the same as those used on the approved sample. 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 ingredients and/or processing and, when requested, sample felt. Production felt made by the revised procedure shall not be shipped prior to receipt of reapproval.

#### 4.5 Reports:

The vendor of felt shall furnish with each shipment a report showing the results of tests to determine conformance to the acceptance test requirements and stating that the felt conforms to the other technical requirements. This report shall include the purchase order number, lot number, AMS 3286F, vendor's material designation, form, size, and quantity.