SAE The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 3906/5B

Issued JUN 1975
Revised JUL 1992
Reaffirmed OCT 1997

Submitted for recognition as an American National Standard

Superseding AMS 3906/5A

Glass Non-Woven Fiber Tape and Flat Sheet Epoxy Resin Impregnated, For Hand and Machine Layup GL-I-36 - 150 (302)

1. SCOPE:

1.1 Form:

This specification covers one type of epoxy-resin-impregnated, non-woven, glass fiber in the form of tape for hand or machine layup and of flat sheet.

1.2 Application:

These products have been used typically in structural and electrical composites requiring strength up to 150 °C (302 °F), but usage is not limited to such applications.

1.3 Classification:

GL-I-36 - 150 (302), non-woven “E” glass fiber impregnated with epoxy resin for service from -55 to +150 °C (-67 to +302 °F).

2. APPLICABLE DOCUMENTS:

See AMS 3906.

3. TECHNICAL REQUIREMENTS:

3.1 Basic Specification:

The complete requirements for procuring the product described herein shall consist of this document and the latest issue of the basic specification, AMS 3906.

QUESTIONS REGARDING THIS DOCUMENT: (412) 772-7154 FAX: (412) 776-0243
TO PLACE A DOCUMENT ORDER: (412) 776-4970 FAX: (412) 776-0790

3.2 Product:

Shall be a non-woven, general purpose, “E” glass fiber meeting the requirements of MIL-R-60346, Type I, impregnated with epoxy resin formulated to meet the requirements specified herein.

3.3 Properties of Uncured Product:

Shall be as shown in Table 1, 3.3.6, and 3.3.7. Tests shall be performed on the product as-received, after warming to above the dew point prior to sampling.

TABLE 1 - Properties

Paragraph	Property	Requirement	Test Method
3.3.1	Volatile Content by weight, maximum	2%	ASTM D 3530 165 °C ± 5 (329 °F ± 9) 15 minutes ± 1
3.3.2	Total Nonfiber Content by weight	36% ± 3	ASTM D 3529
3.3.3	Resin Flow by weight	22% ± 10	ASTM D 3531 165 °C ± 5 (329 °F ± 9)
3.3.4	Gel Time	3 minutes ± 2	ASTM D 3532 165 °C ± 5 (329 °F ± 9)
3.3.5	Tack	Shall adhere for 30 minutes, minimum	4.5.2 of AMS 3906

3.3.6 Total weight per unit area, determined in accordance with 4.5.3 of AMS 3906, shall be 386 grams per square yard ± 28 (462 g/m^2 ± 33).

3.3.7 Ply thickness, uncured, determined in accordance with 4.5.4 of AMS 3906, shall be 0.011 inch ± 0.003 (0.28 mm ± 0.08).

3.4 Properties of Cured Laminate:

Shall be as follows, determined on specimens cut from a test panel prepared and tested as specified in the basic specification.

3.4.1 Mechanical Properties: Shall be as specified in Table 2.

3.4.2 Density: Shall be determined in accordance with ASTM D 792 on the test laminate used to determine mechanical properties; values for each test laminate shall be reported. Cured resin density shall also be reported.

3.4.3 Void Content: Shall be not greater than 4%, determined in accordance with ASTM D 2734.

3.4.4 Fiber Volume: Shall be determined in accordance with 4.5.5 of AMS 3906 on the test laminate used to determine mechanical properties; values for each laminate shall be reported. The fiber density to be used shall be 2.54 g/cm^3.

4. QUALITY ASSURANCE PROVISIONS:

See AMS 3906.

5. PREPARATION FOR DELIVERY:

See AMS 3906.

6. ACKNOWLEDGMENT:

See AMS 3906.

7. REJECTIONS:

See AMS 3906.

8. NOTES:

See AMS 3906.

TABLE 2A - Minimum Average Mechanical Properties[A], Inch-Pound Units

Property	Value, Tested at -67 °F ± 9 ksi	Value, Tested at 68 to 86 °F ksi	Value, Tested at 302 °F ± 9 ksi	Test Method
Tensile Strength[B]				ASTM D 3039
Longitudinal	120	110	75.0	
Transverse	TBR	TBR	TBR	
Tensile Modulus[B]				ASTM D 3039
Longitudinal	5.0×10^3	5.0×10^3	4.0×10^3	
Transverse	TBR	TBR	TBR	
Compressive Strength[B]				ASTM D 695
Longitudinal	90.0	75.0	40.0	
Transverse	NA	TBR	NA	
Compressive Modulus[B]				ASTM D 695
Longitudinal	TBR	4.8×10^3	TBR	
Transverse	NA	TBR	NA	
Flexural Strength[B]				ASTM D 790
Longitudinal	160	130	80.0	
Flexural Modulus[B]				ASTM D 790
Longitudinal	5.0×10^3	4.8×10^3	4.0×10^3	
Short Beam Shear Strength	TBR	7.5	TBR	ASTM D 2344