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INTERNATIONAL
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AEROSPACE MATERIAL SPECIFICATION

SAE AMS 3906/2B

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Submitted for recognition as an American National Standard

Superseding AMS 3906/2A

Glass Non-Woven Fiber Tape and Flat Sheet Epoxy Resin Impregnated, For Hand and Machine Layup GL-III-36 - 120 (248)

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 composites requiring high strength up to 120 °C (248 °F), but usage is not limited to such applications.

1.3 Classification:

GL-III-36 - 120 (248), non-woven “S” glass fiber impregnated with epoxy resin for service from -55 to +120 °C (-67 to +248 °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.

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3.2 Product:

Shall be a non-woven, high tensile strength, “S” glass fiber meeting the requirements of MIL-R-60346, Type III, 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	17% ± 7	ASTM D 3531 165 °C ± 5 (329 °F ± 9)
3.3.4	Gel Time	4 minutes ± 3	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 as ordered; available levels are shown below.

259 grams/square yard ± 19 (310 g/m^2 ± 23)
282 grams/square yard ± 23 (337 g/m^2 ± 28)
386 grams/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 as ordered; available levels are shown below.

0.006 inch ± 0.002 (0.15 mm ± 0.05)
0.007 inch ± 0.002 (0.18 mm ± 0.05)
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 shown 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 2.485 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 248 °F ± 9 ksi	Test Method
Tensile Strength[B]				ASTM D 3039
Longitudinal	180	170	85.0	
Transverse	TBR	TBR	TBR	
Tensile Modulus[B]				ASTM D 3039
Longitudinal	6.8×10^3	6.6×10^3	5.0×10^3	
Transverse	TBR	TBR	TBR	
Compressive Strength[B]				ASTM D 695
Longitudinal	90.0	85.0	50.0	
Transverse	NA	TBR	NA	
Compressive Modulus[B]				ASTM D 695
Longitudinal	TBR	5.8×10^3	TBR	
Transverse	NA	TBR	NA	
Flexural Strength[B]				ASTM D 790
Longitudinal	170	150	75.0	
Flexural Modulus[B]				ASTM D 790
Longitudinal	6.0×10^3	5.8×10^3	5.0×10^3	
Short Beam Shear Strength	TBR	7.5	TBR	ASTM D 2344