



AEROSPACE MATERIAL SPECIFICATION

AMS3906™

REV. C

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Superseding AMS3906B

Glass Tape and Flat Sheet, Non-Woven Cloth
Epoxy Resin Impregnated, For Hand and Machine Layup

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 and its supplementary detail specification cover various types of non-woven glass cloth in the form of tape and flat sheet impregnated with epoxy resin, the resin to be supplied in a "B" staged condition.

1.2 Application:

These products have been used typically for fabricating high strength composite parts, using autoclave, press, vacuum bag, or filament winding techniques for fabrication, but usage is not limited to such applications.

1.3 Classification:

The tapes and flat sheets shall be as specified in the applicable detail specification wherein each product is defined by basic fiber, property characteristics, and maximum continuous service temperature. An example is shown in 8.2. The product covered by each detail specification appears in the title.

1.4 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 latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 2825 Material Safety Data Sheets
AMS 3898 Interleaf Carrier Material, Composite Tape

2.2 ASTM Publications:

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

ASTM D 695 Compressive Properties of Rigid Plastics
ASTM D 695M Compressive Properties of Rigid Plastics (Metric)
ASTM D 790 Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
ASTM D 790M Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials (Metric)
ASTM D 792 Specific Gravity (Relative Density) and Density of Plastics by Displacement
ASTM D 2344 Apparent Interlaminar Shear Strength of Parallel Fiber Composites by Short Beam Method
ASTM D 2734 Void Content of Reinforced Plastics
ASTM D 3039 Tensile Properties of Fiber-Resin Composites
ASTM D 3529 Resin Solids Content of Carbon Fiber-Epoxy Prepreg
ASTM D 3530 Volatiles Content of Carbon Fiber-Epoxy Prepreg
ASTM D 3531 Resin Flow of Carbon Fiber-Epoxy Prepreg
ASTM D 3532 Gel Time of Carbon Fiber-Epoxy Prepreg

2.3 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-R-60346 Roving, Glass, Fibrous
MIL-STD-2073-1 DOD Materiel, Procedures for Development and Application of Packaging Requirements

2.4 AIA Publications:

Available from National Standards Association, Inc., 1321 Fourteenth Street, N. W., Washington, DC 20005.

NAS 992 Reel Composite Filament Tape - Automated Machine Lay-up

3. TECHNICAL REQUIREMENTS:

3.1 Detail Specification:

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

3.2 Material:

- 3.2.1 Construction: The product shall consist of parallel, non-woven, unidirectional glass fibers meeting the requirements of MIL-R-60346, impregnated with an epoxy resin meeting the requirements of the applicable detail specification, and arranged in a single in-plane layer.
- 3.2.2 Storage Life: The product shall meet the requirements of the applicable detail specification when tested at any time up to 12 months from date of receipt of the product by purchaser provided the product has been stored in the original waterproof, heat-sealed container at a temperature not higher than 4 °C (39 °F).
- 3.2.3 Working Life: The product shall meet the requirements of the applicable detail specification when tested after continuous exposure to a relative humidity not higher than 70% and a temperature not higher than 27 °C (81 °F) for not less than three months.

3.3 Properties:

- 3.3.1 Uncured Impregnated Material: The product as received shall conform to the requirements of this specification and the applicable detail specification. Tests shall be performed on the product supplied and in accordance with applicable test procedures specified in 4.5 and in the detail specifications.
- 3.3.2 Cured Laminate: Test laminates shall conform to the requirements of this specification and the applicable detail specification. Tests shall be performed in accordance with applicable test procedures on specimens cut from laminates produced as in 4.5.1.

3.4 Quality:

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