



AEROSPACE MATERIAL SPECIFICATION

AMS3829™

REV. C

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Superseding AMS3829B

Cloth, Type "E"-Glass, Style 7781 Fabric
Solution-Addition-Type PMR-15 Polyimide Resin Impregnated

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 one type of glass cloth impregnated with a heat-reactive, thermosetting, solution-addition-type PMR-15 polyimide resin system, supplied in the form of continuous rolls of full width cloth or slit tape.

1.2 Applications:

This cloth has been used typically for structural laminates requiring high strength and heat resistance for long-term service up to 290 °C (554 °F) and short-time service up to 315 °C (599 °F), 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 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 3824 Cloth, Type "E" Glass, Finished for Resin Laminates

2.2 ASTM Publications:

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

ASTM D 638 Tensile Properties of Plastics

ASTM D 638M Tensile Properties of 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

2.3 U.S. Government Publications:

Available from DODSSP, Subscription Services 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:

Shall be the reinforcement specified in 3.1.1, impregnated with the resin system specified in 3.1.2, supplied as rolls of full width impregnated cloth or as slit tape, as ordered, and in a condition suitable for in situ polymerization by vacuum/autoclave processing at 290 °C (554 °F) under 100 psi (689 kPa) pressure.

3.1.1 Reinforcement: Shall be AMS 3824 Type "E" Glass cloth, Style 7781, treated with a suitable finish to produce the required performance characteristics with the resin system specified in 3.1.2.

3.1.2 Resin: Shall be a heat-reactive, thermosetting monomeric reactants solution-addition-type PMR-15 polyimide resin system resulting in a prepolymer polyimide resin system with a 1500 formula molecular weight.

3.2 Storage Life:

Cloth shall have a storage life of not less than three months from the date of impregnation when stored or shipped in a barrier container and maintained at not warmer than 7 °C (45 °F).

3.3 Working Life:

Cloth shall meet the requirements of 3.4 and 3.5 when tested, after warming to room temperature, at any time up to five days after removal from storage at not warmer than 7 °C (45 °F).

3.4 Properties:

Cloth shall conform to the following requirements:

3.4.1 Uncured Impregnated Cloth: Shall have the following properties, determined on the product supplied, sampled in accordance with 4.3.1 after warming to above the dew point, and tested in accordance with 4.5.2:

3.4.1.1 Volatile Content: $9\% \pm 2$

3.4.1.2 Resin Content by weight: $38\% \pm 3$

3.4.2 Cured Laminates: Shall have the properties shown in Table 1, determined on specimens cut from a test laminate prepared as in 4.5.1. Specimens for elevated temperature tests shall be tested after exposure for 30 minutes ± 1 at the test temperature. Property values specified in 3.4.2.1 through 3.4.2.4 are the minimum averages for five determinations for each test; no individual value shall be less than 90% of the minimum average value specified.