



AEROSPACE MATERIAL SPECIFICATION

AMS3710™**REV. C**

Issued 1961-07
Revised 1993-07
Reaffirmed 2022-12

Superseding AMS3710B

Sandwich Structures, Glass Fabric-Resin
Low Pressure Molded, Heat Resistant

RATIONALE

AMS3710C has been reaffirmed to comply with the SAE Five-Year Review policy.

1. SCOPE:

1.1 Form:

This specification covers a resin-impregnated glass fabric honeycomb core in the form of flat or contoured sandwich structures.

1.2 Application:

This product has been used typically for structural and electrical parts requiring low weight, strength, and good electrical resistance up to 300 °F (149 °C), 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.

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SAE WEB ADDRESS:

Full document details: SAE AMS3710C

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS3710C/>

Documents

Document Sharing Hub

2.1 ASTM Publications:

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

ASTM C 271 Density of Core Materials for Structural Sandwich Constructions

ASTM C 273 Shear Properties in Flatwise Plane of Flat Sandwich Constructions or Sandwich Cores

ASTM C 297 Tensile Strength of Flat Sandwich Constructions in Flatwise Plane

ASTM C 364 Edgewise Compressive Strength of Flat Sandwich Constructions

ASTM C 365 Flatwise Compressive Strength of Sandwich Cores

ASTM C 393 Flexural Properties of Flat Sandwich Constructions

2.2 U.S. Government Publications:

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

MIL-STD-105 Sampling Procedures and Tables for Inspection by Attributes

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

3. TECHNICAL REQUIREMENTS:

3.1 Material and Fabrication:

Shall consist of a resin-impregnated, glass-fabric honeycomb core covered with resin-impregnated, glass-fabric faces.

3.1.1 Core:

3.1.1.1 Glass Fabric Reinforcement: The glass fabric reinforcement, prior to being coated, shall be heat cleaned followed by application of a water-resistant finish compatible with the impregnating resin.

3.1.1.2 Style of Weave: Each ply of glass fabric used for the honeycomb core shall not exceed 0.004 inch (0.10 mm) in thickness and 2 ounces per square yard (68 g/m²) in weight. Breaking strength shall be not less than 88 pounds per inch (15.4 kN/m) edgewise and 86 pounds per inch (15.1 kN/m) pickwise.

3.1.2 Impregnating Resin: Shall be a heat-resistant, thermosetting resin.

3.1.3 Core Layup: Honeycomb core material shall be a random layup but symmetrically positioned at diametrically opposite locations. Adjacent blocks of honeycomb whose joints are parallel to the ribbon direction shall be intermeshed (See 3.1.3.1) or butted. All other joints shall be intermeshed. The honeycomb shall not be gored.

- 3.1.3.1 Intermesh is defined as the positioning of adjacent blocks of honeycomb such that the outermost edge of one block shall fall within the outermost edge of the adjacent block. This shall be accomplished without crushing or damaging the honeycomb core material.
- 3.1.4 Faces: The thickness of faces and their tolerances shall be as specified by purchaser. The faces shall be premolded or laminated prior to bonding to the core. If required, a peel-ply-wet-ply bonding technique may be used. Sandwich faces shall be essentially void-free.
 - 3.1.4.1 Glass Fabric Reinforcement: Each ply of glass fabric used for the outer faces shall not exceed 0.016 inch (0.41 mm) in thickness and 10 ounces per square yard (339 g/m²) in weight.
 - 3.1.4.2 Impregnation Resin: Shall be a heat-resistant, thermosetting resin.
- 3.1.5 Core-To-Face Bonding Resin: The resin or adhesive used for bonding the sandwich faces to the honeycomb core shall be a supported or unsupported, heat-resistant epoxy compound.
- 3.1.6 Edge Band Sealant and Local Reinforcements: The product shall be supplied free of edge band sealant and locally embedded reinforcements.
- 3.1.7 Core-to-Face Bond: The sandwich faces shall be uniformly and firmly bonded to the core material over the entire area of the sandwich structure. There shall be a substantial fillet of resin where the honeycomb contacts the face material. Excessive resin deposits, which affect electrical transmission efficiency, are not permitted. Unbonded areas between the outer face and the core are not acceptable.

3.2 Condition:

The bonded construction shall be cured to meet the requirements of 3.3 and supplied in the unpainted condition.

3.3 Properties:

Sandwich constructions having nominal cell size (distance between parallel sides of a cell measured perpendicular to the ribbon direction) of the core of 3/16 inch (4.8 mm) shall conform to requirements shown in Table 1; properties of constructions having nominal core cell size other than 3/16 inch (4.8 mm) shall be as agreed upon by purchaser and vendor. Tests shall be performed in accordance with specified test methods, insofar as practicable, except that dielectric constant and dissipation factor tests shall be determined by procedures acceptable to purchaser.

3.3.1 Honeycomb Core: Shall be as shown in Table 1.