

AEROSPACE MATERIAL SPECIFICATIONS

AMS 3607C

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

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PLASTIC SHEET AND PLATE Cotton Fabric Reinforced Phenol-Formaldehyde

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. APPLICATION: Primarily for parts where good mechanical properties are important but electrical properties are of secondary importance and no post-forming is required. Often used for fairleads and tubing supports.
3. MATERIAL AND FABRICATION: Flat sheets, consisting of laminations of cotton fabric which have been impregnated with a thermosetting, phenolic type of synthetic resin and properly cured.
4. TECHNICAL REQUIREMENTS:
 - 4.1 General:
 - 4.1.1 Color: Unless otherwise specified, the color shall be natural. Supplementary coloring, when specified, shall be substantially uniform throughout the sheets. The faces of the sheets shall be substantially free from streaks or stains.
 - 4.1.2 Finish: Semi-gloss, unless otherwise specified.
 - 4.1.3 Weathering: When specified, the sheet shall have weather resistance acceptable to the purchaser as determined by a procedure agreed upon by purchaser and vendor.
 - 4.1.4 Corrosion: The product shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service. Discoloration of metals shall not be considered objectionable.
 - 4.1.5 Machinability: Sheet, at room temperature, shall not split, crack, chip, or delaminate when punched in thicknesses 1/8 in. and under or when drilled, sawed, or machined in any thickness.
 - 4.1.6 Resistance to Heat: Sheet shall not soften, split, or crack when heated at $250\text{ F} \pm 2$ ($121.1\text{ C} \pm 1.1$) for 5 hours.
 - 4.2 Properties: Unless otherwise specified, the product shall conform to the following requirements in both warp and filling directions; tests shall be performed on the product supplied and in accordance with the issue of specified ASTM methods listed in the latest issue of AMS 2350, or as otherwise specified.

Section 8.3 of the SAE Technical Board rules provides that: "All technical reports, including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no attempt to adhere to a SAE standard or recommended practice, and no commitment to conform to or be guided by any technical report. In formulating and adopting technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents."

4.2.1	Tensile Strength, psi, min	7,500	ASTM D638
4.2.2	Ultimate Compressive Strength Flatwise, psi, min	35,000	ASTM D695
4.2.3	Flexural Strength Flatwise, psi, min	16,000	ASTM D790
4.2.4	Impact Strength, Edgewise (Notched Izod) ft-lb per in. of notch, min	2.0	ASTM D256

4.2.5 Afterglow See Notes 1 and 2

Ø	Nominal Thickness, Inches	Afterglow, sec, max	
		(See Note 3)	(See Note 4)
	Up to 1/4, incl	4	15
	Over 1/4 to 1/2, incl	15	25
	Over 1/2 to 1, incl	35	45
	Over 1	45	70

4.2.6 Water absorption (24 hr immersion),
% gain, max ASTM D570

Nominal Thickness, Inches See Note 5

1/32	8.0
3/64	5.2
1/16	4.4
3/32	3.2
1/8	2.5
5/32	2.2
3/16	1.9
7/32	1.8
1/4	1.6
1/2	1.2
3/4	1.1
1 and over	1.0

Note 1. Three specimens, 6 x 1/2 in., shall be placed in a shielded area of subdued light, such as an unlighted fume hood, mounted horizontally as in ASTM D635, except that the screen need not be used. A Meker or similar large top burner with a flame 1 in. long shall be placed so that the tip of the flame contacts the plastic and 1 in. of the plastic is covered by the flame. The specimens shall be heated 15 sec for each 1/32 in. of thickness and fraction thereof. At the end of the ignition period, the burner shall be removed and the flame on the specimen shall be blown out. The duration of the visible glow shall then be noted.

Note 2. Material shall be capable of meeting this requirement but individual lots need not be tested.

Note 3. Conditioned for not less than 4 hr at 73 F $\pm$ 2 (22.8 C $\pm$ 1.1) and 50% $\pm$ 2 relative humidity.

Note 4. Conditioned for not less than 168 hr at 225 F $\pm$ 2 (107.2 C $\pm$ 1.1).

Note 5. For intermediate thicknesses not listed in the table, the value for the next smaller thickness shall be used.

5. **QUALITY:** The product shall be uniform in quality and condition, free from blisters, wrinkles, cracks, crazing, and surface roughness, and reasonably free from other small imperfections such as scratches and dents.

6. **SIZES AND TOLERANCES:** Unless otherwise specified, the following shall apply:

6.1 **Length and Width:** Shall not vary more than $\pm$ 1 in. from the nominal dimensions.

6.2 **Thickness:** Standard thicknesses and tolerances shall be as follows:

Nominal Thickness Inch	Tolerance, In. Plus and Minus	Nominal Thickness Inch	Tolerance, In. Plus Only	Nominal Thickness Inches	Tolerance, In. Plus Only
1/32	0.0065	5/16	0.035	1	0.065
3/64	0.0075	3/8	0.040	1-1/8	0.069
1/16	0.0075	7/16	0.044	1-1/4	0.073
3/32	0.009	1/2	0.048	1-3/8	0.077
1/8	0.010	5/8	0.053	1-1/2	0.081
5/32	0.011	3/4	0.058	1-5/8	0.085
3/16	0.0125	7/8	0.062	1-3/4	0.089
7/32	0.014			2	0.097
1/4	0.030				

6.3 **Warp and Twist:** Shall not exceed 1% based on a 36 in. length, and shall be determined in accordance with the issue of ASTM D709 listed in the latest issue of AMS 2350.

7. REPORTS:

- 7.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report stating that the product conforms to the requirements of this specification. This report shall include the purchase order number, material specification number, vendor's material designation, size, thickness, and quantity.
- 7.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number, contractor or other direct supplier of material, supplier's material designation, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.

8. **IDENTIFICATION:** Unless otherwise specified, each sheet shall be marked on one corner with the manufacturer's identification and AMS 3607C. The characters shall be not less than 3/8 in. in height, shall be applied using a suitable marking fluid, and shall be sufficiently stable to withstand normal handling.

9. PACKAGING:

- 9.1 Packaging shall be accomplished in such a manner as to ensure that the product, during shipment and storage, will not be permanently distorted, and will be protected against damage from exposure to weather or any normal hazard.
- 9.2 Each package or lot shall be permanently and legibly marked to give the following information:

PLASTIC SHEET AND PLATE
COTTON FABRIC REINFORCED PHENOL-FORMALDEHYDE
AMS 3607C
PURCHASE ORDER NUMBER _____
SIZE AND NUMBER OF SHEETS _____
MANUFACTURER'S IDENTIFICATION _____

10. APPROVAL:

- 10.1 To assure adequate performance characteristics, compounds shall be approved by purchaser before material for production use is supplied, unless such approval be waived. Results of tests on production material shall be essentially equivalent to those on the approved sample.
- 10.2 Vendor shall use the same materials and manufacturing processes for production material as for approved sample material. If necessary to make any change in materials or processing which could unfavorably affect any characteristics of the material, vendor shall obtain written permission from purchaser prior to incorporating such change.