



AEROSPACE MATERIAL SPECIFICATION

AMS-S-83474™

REV. B

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Superseding AMS-S-83474A

Shims, Molded, Filled Resin Compound and Sheet Prepeg

RATIONALE

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Documents

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1. SCOPE

1.1 Scope

This specification covers the requirements for filled, resinous thermosetting compound and sheet pre-preg to fabricate shims for use during assembly of aircraft and marine components and parts.

1.2 Classification

The material shall be classified in the three types as specified:

Type I - A two component material (base and hardener) which, after mixing and application of heat (350 °F), will cure to a hard, strong resin. Type I material may also be cured in ambient temperature of 75 °F ± 5 for a period of 96 hours minimum.

Type I Class A - A two component material (base and hardener) which after mixing may be cured to a hard, strong resin in ambient temperature of 75 °F ± 5 for a period of 9 hours.

Type II - A precatalyzed (B-staged) sheet material which will cure to a hard, strong resin with the application of heat. Type II material may also be cured in ambient temperature of 75 °F ± 5 for a period of 96 hours.

Type III - A precatalyzed (B-staged) material supplied frozen in a tube from which it can be extruded and cured to a hard strong resin with the application of heat (200 °F). Type III material may also be cured in ambient temperature of 75 °F ± 5 for a period of 96 hours minimum.

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 U.S. Government Publications

Available from the Document Automation and Production Service (DAPS), Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6257, <http://assist.daps.dla.mil/quicksearch/>.

MIL-Y-1140	Yarn, Cord, Sleeving, Cloth and Tape Glass
MIL-DTL-5624	Turbine Fuel, Aviation, Grades JP-4 and JP-5
MIL-T-81533	Trichloroethane 1,1,1 (Methyl Chloroform Inhibited, Vapor Degreasing

A-A-55828	Sulfuric Acid, Technical
A-A-59123	Sodium Dichromate, Dihydrate, Technical
MMM-A-132	Adhesive, Heat Resistant, Airframe Structural, Metal to Metal

2.2 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

AMS3167B	Solvents, Wipe for Cleaning Prior to Application of Primer and Top Coat Materials, or Sealing Compounds
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2.3 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org

ASTM A 309	Standard Test Method for Weight and Composition of Coating on Terne Sheet by the Triple-Spot Test
ASTM A 630	Standard Test Methods for Determination of Tin Coating Weights for Electrolytic Tin Plate
ASTM B 117	Standard Practice for Operating Salt Spray (Fog) Apparatus
ASTM D 740	Methyl Ethyl Ketone Technical
ASTM E 172	Standard Practice for Describing and Specifying the Excitation Source in Emission Spectrochemical Analysis (International Specification)
ASTM E 376	Standard Practice for Measuring Coating Thickness by Magnetic-Field or Eddy-Current (Electromagnetic) Examination Methods
ASTM E 427	Standard Practice for Testing for Leaks Using the Halogen Leak Detector (Alkali-Ion Diode)
ASTM E 498	Standard Test Methods for Leaks Using the Mass Spectrometer Leak Detector or Residual Gas Analyzer in the Tracer Probe Mode
ASTM E 515	Standard Test Method for Leaks Using Bubble Emission Techniques
ASTM E 1282	Standard Guide for Specifying the Chemical Compositions and Selecting Sampling Practices and Quantitative Analysis Methods for Metals, Ores, and Related Materials
ASTM G 47	Standard Test Method for Determining Susceptibility to Stress-Corrosion Cracking of 2XXX and 7XXX Aluminum Alloy Products
ASTM G 69	Standard Test Method for Measurement of Corrosion Potentials of Aluminum Alloys

3. REQUIREMENTS

3.1 Qualification

The materials furnished under this specification shall be products which are qualified for listing on the applicable qualified products list at the time set for opening of bids (See 4.2 and 6.2).

3.2 Type I

Type I material shall meet all of the requirements specified in Table 1 when cured for 60 to 70 minutes at 180 to 190 °F plus 60 to 70 minutes at 350 to 360 °F or cured to the manufacturer's recommended step cure cycle, or minimum of 96 hours at ambient temperature of 75 °F ± 5.

Type I Class A material shall meet all of the requirements specified in Table 1 when cured for a period of 9 hours minimum at ambient temperature of 75 °F ± 5.

3.3 Types II and III

Types II and III materials shall meet all of the requirements specified in Table 1 when cured for 120 to 130 minutes at 200 to 210 °F or to the manufacturers recommended cure cycle, or minimum of 96 hours at ambient temperature of 75 °F ± 5.

TABLE 1 - PROPERTY REQUIREMENTS (PAGE 1 OF 2 PAGES)

PROPERTY	MATERIAL		TEST METHOD
	TYPE I	TYPES II & III	
Weight Loss, %, 350° 10 Hours, Max. Avg.	.5	.5	4.5.1
Shore D Hardness After Cure, Min. Avg.	95	93	Fed. Test Method Std. 406 Method 1083
Exposure Shrinkage, %, 350°F, 10 Hours, Max. Avg.	.2	.2	4.5.1
Cure Shrinkage, %, Max. Avg.	.35	.2	4.5.1
Density After Cure, lb/ft ³ , Avg.	101	98	4.5.4
Lap Shear Fluid Resistance Strength, psi, Min. Avg. (a) Salt Spray: Aluminum (b) Humidity: Aluminum (c) 180°F JP-4: Aluminum	 1500 1700 1800	 1500 1650 1850	4.5.2 4.5.3
Minimum Average Compressive Strength, psi (a) Ultimate at: -65°F Room Temp. 270°F 350°F 420°F	 35,000 23,000 12,500 8,000 5,500	 30,000 21,000 10,000 8,000 ----	4.5.4