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INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

SAE AMS 4243A

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Superseding AMS 4243

ALUMINUM ALLOY, ALCLAD SHEET
6.2Zn - 2.3Cu - 2.2Mg - 0.12Zr (Alclad 7050-T76)
Solution Heat Treated and Overaged

UNS A87050

1. SCOPE:

1.1 Form:

This specification covers an aluminum alloy in the form of sheet.

1.2 Application:

This sheet has been used typically for applications requiring a high level of mechanical properties and good resistance to exfoliation corrosion, but usage is not limited to such applications.

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 2355 Quality Assurance Sampling and Testing, Aluminum Alloys and Magnesium Alloys, Wrought Products, Except Forging Stock, and Rolled, Forged, or Flash Welded Rings

MAM 2355 Quality Assurance Sampling and Testing, Aluminum Alloys and Magnesium Alloys, Wrought Products, Except Forging Stock, and Rolled, Forged, or Flash Welded Rings, Metric (SI) Units

AMS 2811 Identification, Aluminum and Magnesium Alloy Wrought Products

2.2 ASTM Publications:

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

ASTM G 34-72 Exfoliation Corrosion Susceptibility in 2XXX and 7XXX Series Aluminum Alloys (EXCO Test)

2.3 U.S. Government Publications:

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

MIL-H-6088 Heat Treatment of Aluminum Alloys

2.4 ANSI Publications:

Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.

ANSI H35.2 Dimensional Tolerances for Aluminum Mill Products
ANSI H35.2M Dimensional Tolerances for Aluminum Mill Products (Metric)

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall conform to the percentages by weight shown in Tables 1 and 2, determined in accordance with AMS 2355 or MAM 2355.

TABLE 1 - Composition, Core (7050)

Element	min	max
Zinc	5.7	6.7
Copper	2.0	2.6
Magnesium	1.9	2.6
Zirconium	0.08	0.15
Iron	--	0.15
Silicon	--	0.12
Manganese	--	0.10
Titanium	--	0.06
Chromium	--	0.04
Other Impurities, each	--	0.05
Other Impurities, total	--	0.15
Aluminum	remainder	

TABLE 2 - Composition, Cladding (7072)

Element	min	max
Zinc	0.8	1.3
Silicon + Iron	--	0.7
Copper	--	0.10
Magnesium	--	0.10
Manganese	--	0.10
Other Impurities, each	--	0.05
Other Impurities, total	--	0.15
Aluminum	remainder	

3.2 Condition:

Solution heat treated and overaged to the T76 temper (See 8.2). Heat treatment shall be performed using furnaces surveys and temperature controllers and recorders calibrated in accordance with MIL-H-6088.

3.3 Properties:

Shall conform to the following requirements, determined in accordance with AMS 2355 or MAM 2355:

3.3.1 (R) Tensile Properties: Shall be as specified in Table 3. Tensile properties shall be determined in the long-transverse direction and, when specified, in the longitudinal direction.

TABLE 3A - Minimum Tensile Properties, Inch/Pound Units

Nominal Thickness Inch	Specimen Orientation	Tensile Strength ksi	Yield Strength at 0.2% Offset ksi	Elongation in 2 Inches or 4D %, min
0.040 to 0.062, incl	Longitudinal	69.0	64.0	--
	Long-Trans.	72.0	61.0	7
Over 0.062 to 0. 126, incl	Longitudinal	71.0	66.0	--
	Long-Trans.	73.0	66.0	7
Over 0. 126 to 0. 187, incl	Longitudinal	75.0	69.0	--
	Long-Trans.	75.0	68.0	7

TABLE 3B - Minimum Tensile Properties, Sl Units

Nominal Thickness Millimeters	Specimen Orientation	Tensile Strength MPa	Yield Strength at 0.2% Offset MPa	Elongation in 50.8 mm or 4D %
1.02 to 1.57, incl	Longitudinal	476	441	--
	Long-Trans.	496	421	7
Over 1.57 to 3.20, incl	Longitudinal	490	455	--
	Long-Trans.	503	455	7
Over 3.20 to 4.75, incl	Longitudinal	517	476	--
	Long-Trans.	517	469	7

3.3.2 (R) Exfoliation Resistance: Sheet, after removal of cladding, shall achieve exfoliation rating of EB or better, as illustrated in ASTM G34-72, at the T/10 plane.

3.3.3 Cladding Thickness: After rolling, the average cladding thickness on each side shall be as shown in Table 4.

TABLE 4 - Average Cladding Thickness

Total Thickness of Composite Product Inch	Total Thickness of Composite Product Millimeters	Cladding Thickness Each Side % Total Thickness, Minimum	Cladding Thickness Each Side % Total Thickness, Nominal
0.040 to 0.063, excl	1.02 to 1.60, excl	3.2	4
0.063 to 0.188, excl	1.60 to 4.78, excl	2	2.5

3.4 Quality:

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

3.5 (R) Tolerances:

Shall conform to all applicable requirements of ANSI H35.2 or ANSI H35.2M.