



AEROSPACE MATERIAL SPECIFICATION

AMS4243

REV. B

Issued 1998-10
Revised 2003-08
Reaffirmed 2014-04

Superseding AMS4243A

Aluminum Alloy, Alclad Sheet
6.2Zn - 2.3Cu - 2.2Mg - 0.12Zr (Alclad 7050-T76)
Solution Heat Treated and Overaged
(Composition similar to UNS A87050)

RATIONALE

AMS4243B has been reaffirmed to comply with the SAE five-year review policy.

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 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 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or www.sae.org.

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

AMS 2772 Heat Treatment of Aluminum Alloy Raw Material

AS1990 Aluminum Alloy Tempers

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SAE WEB ADDRESS:

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or www.astm.org.

ASTM B 660	Packaging/Packing of Aluminum and Magnesium Products
ASTM B 666/B 666M	Identification of Aluminum and Magnesium Alloy Products
ASTM G 34	Exfoliation Corrosion Susceptibility in 2XXX and 7XXX Series Aluminum Alloys (EXCO Test)

2.3 ANSI Publications:

Available from ANSI, 25 West 43rd Street, New York, NY 10036 or www.ansi.org.

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.

TABLE 1 - Composition, Core (7050)

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

TABLE 2 - Composition, Cladding (7072)

Element	min	max
Silicon + iron	--	0.7
Copper	--	0.10
Manganese	--	0.10
Magnesium	--	0.10
Zinc	0.8	1.6
Other Elements, each	--	0.05
Other Elements, total	--	0.15
Aluminum	remainder	

3.2 Condition:

Solution heat treated and overaged to the T76 temper (See AS1990 and 8.2). Solution and precipitation heat treatment shall be performed in accordance with AMS 2772.

3.3 Properties:

Shall conform to the following requirements, determined in accordance with AMS 2355 on the mill product:

3.3.1 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 Inches	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, SI Units

Nominal Thickness Millimeters	Specimen Orientation	Tensile Strength MPa	Yield Strength at 0.2% Offset MPa	Elongation in 50.8 mm or 4D %, min
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 Exfoliation Corrosion Resistance: Sheet, after removal of cladding, shall achieve exfoliation rating of EB or better, as illustrated by Figure 2 in ASTM G34, 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, Minimum
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 Tolerances:

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

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The vendor of sheet shall supply all samples for vendor's tests and shall be responsible for the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the sheet conforms to specified requirements.

4.2 Classification of Tests:

- 4.2.1 Acceptance Tests: Composition (3.1), long-transverse tensile properties (3.3.1), when specified, longitudinal tensile properties (3.3.1) and tolerances (3.5) are acceptance tests and, except for composition, shall be performed on each inspection lot.
- 4.2.2 Periodic Tests: Exfoliation corrosion resistance (3.3.2) and cladding thickness (3.3.3) are periodic tests and shall be performed at a frequency selected by the vendor unless frequency of testing is specified by purchaser.

4.3 Sampling and Testing:

Shall be in accordance with AMS 2355.