

AEROSPACE MATERIAL SPECIFICATION



AMS 4256A

Issued OCT 1989
Revised SEP 1995

Superseding AMS 4256

Submitted for recognition as an American National Standard

ALUMINUM ALLOY, CLAD TWO SIDES SHEET
0.6Mg - 0.35Si - 0.28Cu (No. 22 Brazing Sheet)
As Fabricated

UNS A86951

1. SCOPE:

1.1 Form:

This specification covers an aluminum alloy in the form of sheet, clad on two sides.

1.2 Application:

This sheet has been used typically for brazed assemblies which are subjected to heat treatment after joining, 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 2202 Tolerances, Aluminum Alloy and Magnesium Alloy Sheet and Plate
- MAM 2202 Tolerances, Metric, Aluminum Alloy and Magnesium Alloy Sheet and Plate
- 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 2770 Heat Treatment of Wrought Aluminum Alloy Parts
- AMS 2811 Identification, Aluminum and Magnesium Alloy Wrought Products

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

2.2 ASTM Publications:

Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM B 660 Packaging/Packing of Aluminum and Magnesium Products

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

(R)

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

TABLE 1 - Composition, Core (6951)

Element	min	max
Magnesium	0.40	0.80
Silicon	0.20	0.50
Copper	0.15	0.40
Iron	--	0.8
Zinc	--	0.20
Manganese	--	0.10
Other Impurities, each	--	0.05
Other Impurities, total	--	0.15
Aluminum	remainder	

TABLE 2 - Composition, Cladding (4343)

Element	min	max
Silicon	6.8	8.2
Iron	--	0.8
Copper	--	0.25
Zinc	--	0.20
Manganese	--	0.10
Other Impurities, each	--	0.05
Other Impurities, total	--	0.15
Aluminum	remainder	

3.2 Condition:

As fabricated (F).

3.3 Properties:

The sheet shall conform to the following requirements, determined in accordance with AMS 2355 or MAM 2355:

- 3.3.1 After Solution and Aging Heat Treatment: Sheet shall have the following properties after (R) solution and aging heat treatment to the -T62 temper in accordance with AMS 2770 for 6951 alloy.

- 3.3.1.1 Tensile Properties: Shall be as shown in Table 3.

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

Nominal Thickness Inch	Tensile Strength ksi	Yield Strength at 2% Offset ksi	Elongation in 2 Inches or 4D %
0.010 to 0.020, incl	35.0	30.0	6
Over 0.020 to 0.249, incl	35.0	30.0	8

TABLE 3B - Minimum Tensile Properties, SI Units

Nominal Thickness Millimeters	Tensile Strength MPa	Yield Strength at 2% Offset MPa	Elongation in 50.8 mm or 4D %
0.25 to 0.51, incl	241	207	6
Over 0.51 to 6.32, incl	241	207	8

- 3.3.1.2 Bending: Product shall withstand, without cracking, bending at room temperature through an angle of 180 degrees around a diameter equal to the bend factor shown in Table 4 times the nominal thickness of the sheet with axis of bend parallel to the direction of rolling.

TABLE 4 - Bending Parameters

Nominal Thickness Inch	Nominal Thickness Millimeters	Bend Factor
0.010 to 0.036, incl	0.25 to 0.91, incl	3
Over 0.036 to 0.064, incl	Over 0.91 to 1.63, incl	4
Over 0.064 to 0.128, incl	Over 1.63 to 3.25, incl	5
Over 0.128 to 0.249, incl	Over 3.25 to 6.32, incl	6

3.4 Cladding:

Shall be applied to both faces of the core.

3.4.1 Cladding Thickness: After rolling, the average cladding thickness shall be shown in Table 5.

TABLE 5 - Average Cladding Thickness

Total Thickness of Composite Product Inch	Total Thickness of Composite Product Millimeters	Cladding Thickness Per Side, Percent of Total Thickness min	Cladding Thickness Per Side, Percent of Total Thickness max
0.010 to 0.090, incl	0.25 to 2.29, incl	8	12
Over 0.090	Over 2.29	4	6

3.5 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.

3.6 Tolerances:

Shall conform to all applicable requirements of AMS 2202 or MAM 2202.

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 performing all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the sheet conforms to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Composition (3.1), tensile properties (3.3.1.1), and tolerances (3.6) are acceptance tests and, except for composition, shall be performed on each inspection lot.

4.2.2 Periodic Tests: Bending (3.3.1.2) and cladding thickness (3.4.1) 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:

(R) Shall be in accordance with AMS 2355 or MAM 2355.