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400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE

AMS 4347A

Issued 1 OCT 1987
Revised 1 APR 1992

Superseding AMS 4347

Submitted for recognition as an American National Standard

ALUMINUM ALLOY SHEET
1.0Mg - 0.8Si - 0.8Cu - 0.5Mn (6013-T4)
Solution Heat Treated and Naturally Aged

UNS A96013

1. SCOPE:

1.1 Form:

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

1.2 Application:

This product has been used typically for formed structural parts where good stretch formability is required and where, after precipitation heat treatment, good strength, toughness, and fatigue properties and maximum corrosion resistance are inherent, 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 of Aluminum Alloys and Magnesium Alloys, Wrought Products (Except Forging Stock) and Flash Welded Rings

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

AMS 2770 Heat Treatment of Aluminum Alloy Parts

AMS 2811 Identification, Aluminum and Magnesium Alloy Wrought Products

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2.2 ASTM Publications:

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

ASTM B 660 Packaging/Packing of Aluminum and Magnesium Products

2.3 U.S. Government Publications:

Available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-H-6088 Heat Treatment of Aluminum Alloys

3. TECHNICAL REQUIREMENTS:**3.1 Composition:**

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

TABLE 1 - Composition

Element	min	max
Magnesium	0.8	1.2
Copper	0.6	1.1
Silicon	0.6	1.0
Manganese	0.20	0.8
Iron	--	0.50
Zinc	--	0.25
Chromium	--	0.10
Titanium	--	0.10
Other Impurities, each	--	0.05
Other Impurities, total	--	0.15
Aluminum	remainder	

3.2 Condition:
(R)

Solution heat treated and naturally aged in accordance with MIL-H-6088.

3.3 Tensile Properties:

Sheet shall conform to the requirements shown in Table 2, determined in the long-transverse direction in accordance with AMS 2355 or MAM 2355:

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3.3.1 As Solution Heat Treated and Naturally Aged:

TABLE 2 - Minimum Tensile Properties

Property	Value
Tensile Strength	40.0 ksi (276 MPa)
Yield Strength at 0.2% Offset	21.0 ksi (145 MPa)
Elongation in 2 inches (50.8 mm)	20%

3.3.2 After Precipitation Heat Treatment: Sheet, precipitation heat treated in accordance with AMS 2770 to T6 temper, shall have the properties shown in Table 3.

TABLE 3 - Minimum Tensile Properties

Property	Value
Tensile Strength	52.0 ksi (359 MPa)
Yield Strength at 0.2% Offset	46.0 ksi (317 MPa)
Elongation in 2 Inches (50.8 mm)	8%

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 AMS 2202 or MAM 2202.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

(R)

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:

Tests for all technical requirements are acceptance tests and shall be performed on each lot.

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4.3 Sampling and Testing:**(R)**

Shall be in accordance with AMS 2355 or MAM 2355.

4.4 Reports:**(R)**

The vendor of sheet shall furnish with each shipment a report showing the results of tests for tensile properties and stating that the sheet conforms to the chemical composition and other technical requirements. This report shall include the purchase order number, lot number, AMS 4347A, size, and quantity.

4.5 Resampling and Retesting:

Shall be in accordance with AMS 2355 or MAM 2355.

5. PREPARATION FOR DELIVERY:**5.1 Identification:****(R)**

Shall be in accordance with AMS 2811.

5.2 Protective Treatment:

Flat sheet and circles 12 inches (305 mm) and over in nominal diameter shall be protected, during shipment and storage, by interleaving with suitable paper sheets. Circles under 12 inches (305 mm) in nominal diameter shall be protected as agreed upon by purchaser and vendor.

5.3 Packaging:

5.3.1 Sheet shall be prepared for shipment in accordance with commercial practice
(R) and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of the sheet to ensure carrier acceptance and safe delivery.

5.3.2 For direct U.S. Military procurement, packaging shall be in accordance with ASTM B 660, Commercial Level, unless Level A is specified in the request for procurement.

6. ACKNOWLEDGMENT:

A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

7. REJECTIONS:

Sheet not conforming to this specification, or to modifications authorized by purchaser, will be subject to rejection.