

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard



AMS 4216A

Issued JUL 1989
Revised APR 1998

Superseding AMS 4216

Aluminum Alloy, Sheet
1.0Mg - 0.8Si - 0.8Cu - 0.50Mn (6013-T6)
Solution Heat Treated and Artificially Aged

UNS A96013

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 structural parts requiring good strength, toughness, and fatigue properties and maximum corrosion resistance, 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 2772 Heat Treatment of Aluminum Alloy Wrought Materials

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.

Copyright 1998 Society of Automotive Engineers, Inc.
All rights reserved.

Printed in U.S.A.

QUESTIONS REGARDING THIS DOCUMENT:
TO PLACE A DOCUMENT ORDER:
SAE WEB ADDRESS:

(724) 772-7154
(724) 776-4970
<http://www.sae.org>

FAX: (724) 776-0243
FAX: (724) 776-0790

2.2 ASTM Publications:

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

ASTM B 666/B 666M Identification Marking of Aluminum and Magnesium Products

2.3 ANSI Publications:

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

ANSI H 35.2 Dimensional Tolerances for Aluminum Mill Products

ANSI H 35.2M Dimensional Tolerances for Aluminum Mill Products (Metric)

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:

Solution heat treated and artificially aged in accordance with AMS 2772.

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:

TABLE 2 - 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 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:

All technical requirements of this specification are acceptance tests and, except for composition, shall be performed on each inspection lot.

4.3 Sampling and Testing:

Shall be in accordance with AMS 2355 or MAM 2355.

4.4 Reports:

The vendor of sheet shall furnish with each shipment a report stating that the sheet conforms to the chemical composition and tolerances and showing the numerical results of tests on each inspection lot to determine conformance to the other technical requirements. This report shall include the purchase order number, inspection lot number, AMS 4216A, 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:**

Shall be in accordance with ASTM B 666/B 666M.

5.2 Packaging:

5.2.1 Flat sheet shall be protected, during shipment and storage, by interleaving with paper sheets.

5.2.2 Sheet shall be prepared for shipment in accordance with commercial practice 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.

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.

8. NOTES:

8.1 The change bar (I) located in the left margin is for the convenience of the user in locating areas where technical revisions, not editorial changes, have been made to the previous issue of this specification. An (R) symbol to the left of the document title indicates a complete revision of the specification.