SAE Aerospace
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AEROSPACE MATERIAL SPECIFICATION

SAE AMS4276 | REV. A

Issued 1997-09
Revised 2005-08
Reaffirmed 2012-05

Superseding AMS4276

Aluminum Alloy, Sheet
4.4Cu - 1.5Mg - 0.60Mn (2024-0)
Annealed, Fine Grained

(Composition similar to UNS A92024)

RATIONALE

AMS4276A 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 with fine grain structure.

1.2 Application:

This sheet has been used typically for severely-formed structural parts which will be subsequently heat treated and painted or otherwise protected from corrosion, but usage is not limited to such applications.

1.2.1 Certain design and processing procedures may cause this sheet to become susceptible to stress- corrosion cracking after heat treatment; ARP823 recommends practices to minimize such conditions.

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.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
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Email: CustomerService@sae.org
SAE WEB ADDRESS: http://www.sae.org

SAE values your input. To provide feedback on this Technical Report, please visit
http://www.sae.org/technical/standards/AMS4276A

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 Materials
ARP823	Minimizing Stress Corrosion Cracking in Wrought Heat Treatable Aluminum Alloy Products
AS1990	Aluminum Alloy Tempers

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, P.O. Box C700, 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 Marking of Aluminum and Magnesium Products
ASTM E 112	Determining Average Grain Size

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 Table 1, determined in accordance with AMS 2355.

TABLE 1 - Composition

Element	min	max
Silicon	--	0.50
Iron	--	0.50
Copper	3.8	4.9
Manganese	0.30	0.9
Magnesium	1.2	1.8
Chromium	--	0.10
Zinc	--	0.25
Titanium	--	0.15
Other Elements, each	--	0.05
Other Elements, total	--	0.15
Aluminum	remainder	

3.2 Condition:

Annealed in accordance with AMS 2772 to the O temper. Temper definitions are shown in AS1990.

3.3 Properties:

Sheet shall conform to the following requirements determined in accordance with AMS 2355 in the mill produced size.

3.3.1 As Annealed:

3.3.1.1 Average Grain Size: Shall be ASTM No. 6 or finer, determined in accordance with ASTM E 112 or by a technique agreed upon by purchaser and vendor.

3.3.1.2 Tensile Properties: Sheet, 0.020 to 0.126 inch (0.51 to 3.20 mm), inclusive, in nominal thickness shall conform to the requirements shown in Table 2, determined in accordance with AMS 2355:

TABLE 2 - Tensile Properties

Property	Value
Tensile Strength ksi, max	32.0 ksi (221 MPa)
Yield Strength at 0.2% Offset ksi, max	14.0 ksi (97 MPa)
Elongation in 2 Inches (50.8 mm) %, min	12%

3.3.1.3 Bending: Sheet 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 3 times the nominal thickness of the sheet with axis of bend parallel to the direction of rolling.

TABLE 3 - Bending Parameters

Nominal Thickness Inch		Nominal Thickness Millimeters	Bend Factor
0.020 to 0.063, incl		0.51 to 1.60, incl	0
Over 0.063 to 0.126, incl	Over	1.60 to 3.20, incl	2

3.3.2 Response to Heat Treatment: The sheet, as received by purchaser, shall have the properties shown in Table 4 after solution heat treatment in accordance with AMS 2772 and aging for not less than 4 days at room temperatures:

3.3.2.1 Tensile Properties: Shall be as specified in Table 4 for sheet 0.020 to 0.126 inch (0.51 to 3.20 mm), inclusive, in nominal thickness.

TABLE 4A - Minimum Tensile Properties

Property	Value
Tensile Strength	62.0 ksi (427 MPa)
Yield Strength at 0.2% Offset	40.0 ksi (276 MPa)
Elongation in 2 Inches (50.8 mm)	15%

3.3.2.2 Bending: Sheet 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 5 times the nominal thickness of the sheet with axis of bend parallel to the direction of rolling.

TABLE 5 - Bending Parameters

Nominal Thickness Inch		Nominal Thickness Millimeters	Bend Factor
0.010 to 0.020, incl		0.25 to 0.51, incl	4
Over 0.020 to 0.051, incl	Over	0.51 to 1.30, incl	5
Over 0.051 to 0.126, incl	Over	1.30 to 3.20, incl	6

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.