AEROSPACE MATERIAL SPECIFICATION

AMS4259	REV. B

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Superseding AMS4259A

Aluminum Alloy, Sheet
2.4Li - 1.3Cu - 0.95Mg - 0.10Zr (8090-T6)
Solution and Precipitation Heat Treated (Unrecrystallized)

RATIONALE

AMS4259B stabilizes this document because this document contains mature technology that is not expected to change and thus no further revisions are anticipated.

STABILIZED NOTICE

This document has been declared "Stabilized" by the SAE AMS D Nonferrous Alloys Committee and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

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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 the strength of 2024-T3 and lower density, 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 2750	Pyrometry
AMS 2811	Identification, Aluminum and Magnesium Alloy Wrought Products

2.2 ASTM Publications:

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

ASTM B 660	Packaging/Packing of Aluminum and Magnesium Products
ASTM G 85	Modified Salt Spray (Fog) Testing

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
Lithium	2.2	2.7
Copper	1.0	1.6
Magnesium	0.6	1.3
Zirconium	0.04	0.16
Iron	--	0.30
Zinc	--	0.25
Silicon	--	0.20
Manganese	--	0.10
Chromium	--	0.10
Titanium	--	0.10
Other Impurities, each	--	0.05
Other Impurities, total	--	0.15
Aluminum	remainder	

3.2 Condition:

Solution and precipitation heat treated (unrecrystallized).

3.3 Heat Treatment:

Sheet shall be heat treated as follows: pyrometry shall be in accordance with AMS 2750.

3.3.1 Solution Heat Treatment: Heat in air within the range 990 to 1000 °F (532 to 538 °C), hold at the selected temperature within ±5 °F (±3 °C) for a time commensurate with section thickness, and water quench.

3.3.1.1 Sheet may be heated in a neutral salt bath at the option of the heat treat operator at 988 to 995 °F (531 to 535 °C), holding for a time commensurate with section thickness, and quenching in water.

3.3.2 Precipitation Heat Treatment: Heat in air at 330 to 350 °F (166 to 177 °C), hold at heat for 30 to 34 hours, and cool in air.

3.4 Properties:

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

3.4.1 Tensile Properties: Sheet up to 0.250 inches (6.35 mm) in nominal thickness shall meet the properties shown in Table 2. Properties apply in the longitudinal, long-transverse, and 45 degrees from the longitudinal direction.

TABLE 2 - Minimum Tensile Properties

TABLE 2A - Minimum Tensile Properties, Inch/Pound Units

Nominal Thickness Inches	Orientation	Tensile Strength ksi	Yield Strength at 0.2% Offset ksi	Elongation in 2 Inches %
Up to 0.250	L & LT	57.0	44.0	4
	45°	54.0	41.0	4

TABLE 2B - Minimum Tensile Properties, SI Units

Nominal Thickness mm	Orientation	Tensile Strength MPa	Yield Strength at 0.2% Offset MPa	Elongation in 50.8 mm %
Up to 6.35	L & LT	396	303	4
	45°	372	283	4

3.4.2 Exfoliation Corrosion Resistance: Sheet shall exhibit exfoliation corrosion resistance no worse than rating EB when exposed at any plane for two weeks in accordance with ASTM G 85, Annex 2A.

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.