

**ALUMINUM ALLOY SHEET AND PLATE
2.5Mg - 0.25Cr (5052-0)
Annealed**

UNS A95052

1. SCOPE:

1.1 Form: This specification covers an aluminum alloy in the form of sheet and plate.

1.2 Application: Primarily for formed parts requiring moderate strength and good corrosion resistance and where welding may be required in fabrication.

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 documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2202 - Tolerances, Aluminum Alloy and Magnesium Alloy Sheet and Plate
MAM 2202 - Tolerances, Metric, Aluminum Alloy and Magnesium Alloy Sheet and Plate

AMS 2350 - Standards and Test Methods

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

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2.2 ASTM Publications: Available from ASTM, 1916 Race Street, Philadelphia, PA 19103.

ASTM B 660 – Packaging/Packing of Aluminum and Magnesium Products

2.3 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Military Specifications:

MIL-H-6088 – Heat Treatment of Aluminum Alloys

3. TECHNICAL REQUIREMENTS:

3.1 Composition: Shall conform to the following percentages by weight, determined in accordance with AMS 2355 or MAM 2355:

	min	max
Magnesium	2.2	2.8
Chromium	0.15	0.35
Iron	--	0.40
Silicon	--	0.25
Zinc	--	0.10
Manganese	--	0.10
Copper	--	0.10
Other Impurities, each	--	0.05
Other Impurities, total	--	0.15
Aluminum	remainder	

3.2 Condition: Annealed in accordance with MIL-H-6088.

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

3.3.1 Tensile Properties: Shall be as specified in Table I and 3.3.1.1.

TABLE I

Nominal Thickness Inches	Tensile Strength psi	Yield Strength at 0.2% Offset psi, min	Elongation in 2 Inches or 4D %, min
0.006 to 0.007, incl	25,000 – 31,000	9500	--
Over 0.007 to 0.012, incl	25,000 – 31,000	9500	14
Over 0.012 to 0.019, incl	25,000 – 31,000	9500	15
Over 0.019 to 0.031, incl	25,000 – 31,000	9500	16
Over 0.031 to 0.050, incl	25,000 – 31,000	9500	18
Over 0.050 to 0.113, incl	25,000 – 31,000	9500	19
Over 0.113 to 0.249, incl	25,000 – 31,000	9500	20
Over 0.249 to 3.000, incl	25,000 – 31,000	9500	18

TABLE I (SI)

Nominal Thickness Millimetres	Tensile Strength MPa	Yield Strength at 0.2% Offset MPa, min	Elongation in 50.8 mm or 4D %, min
0.15 to 0.18, incl	172 - 214	65.5	--
Over 0.18 to 0.30, incl	172 - 214	65.5	14
Over 0.30 to 0.48, incl	172 - 214	65.5	15
Over 0.48 to 0.79, incl	172 - 214	65.5	16
Over 0.79 to 1.27, incl	172 - 214	65.5	18
Over 1.27 to 2.87, incl	172 - 214	65.5	19
Over 2.87 to 6.32, incl	172 - 214	65.5	20
Over 6.32 to 76.20, incl	172 - 214	65.5	18

3.3.1.1 Tensile property requirements for product under 0.006 inch (0.15 mm) or over 3.000 inches (76.20 mm) in nominal thickness shall be as agreed upon by purchaser and vendor.

3.3.2 Bending: Product 0.249 inch (6.32 mm) and under in nominal thickness shall withstand, without cracking, bending at room temperature flat on itself with axis of bend parallel to the direction of rolling. Bending requirements for product over 0.249 inch (6.32 mm) in nominal thickness shall be as agreed upon by purchaser and vendor.

3.4 Quality: The product, 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 product.

3.5 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 the product shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.4. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests for composition (3.1), tensile properties (3.3.1), and tolerances (3.5) are acceptance tests and shall be performed on each lot.

4.2.2 Periodic Tests: Tests for bending (3.3.2) 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: Shall be in accordance with AMS 2355 or MAM 2355; the number of specimens to be sampled shall be the minimum number of specimens tested.

4.4 Reports: The vendor of the product shall furnish with each shipment a report stating that the product conforms to the chemical composition and other technical requirements of this specification. This report shall include the purchase order number, lot number, AMS 4015H, size, and quantity.

4.5 Resampling and Retesting: Shall be in accordance with AMS 2355 or MAM 2355.

5. PREPARATION FOR DELIVERY:

5.1 Indentification: Each sheet and plate shall be marked on one face, in the respective location indicated below, with the alloy number, temper, AMS 4015 and applicable Federal specification designation, manufacturer's identification, and nominal thickness. The characters shall be of such size as to be legible, shall be applied using a suitable marking fluid, and shall be sufficiently stable to withstand normal handling. The markings shall have no deleterious effect on the product or its performance.

5.1.1 Flat Sheet and Plate Under 6 Inches (152 mm) Wide: Shall be marked in one or more lengthwise rows of characters recurring at intervals not greater than 3 feet (914 mm).

5.1.2 Flat Sheet and Plate 0.375 Inches (9.52 mm) and Under Thick, 6 - 60 Inches (152 - 1524 mm), Incl. Wide, and 36 - 200 Inches (914 - 5080 mm), Incl. Long: Shall be marked in lengthwise rows of characters recurring at intervals not greater than 3 feet (914 mm), the rows being spaced approximately 6 inches (152 mm) on centers across the width and staggered. Every third row shall show the manufacturer's identification and nominal thickness. The other rows shall show the alloy number, temper, and AMS 4015 and applicable Federal specification designation.

5.1.3 Flat Sheet and Plate Over 0.375 Inch (9.52 mm) Thick, or Over 60 Inches (1524 mm) Wide, or Over 200 Inches (5080 mm) Long: Shall be marked as in 5.1.2 or, at vendor's discretion, shall be marked in one or two rows of characters recurring at intervals not greater than 3 feet (914 mm) running around the periphery of the piece. If one row is used, it shall show all information of 5.1. If two rows are used, one row shall show the alloy number, temper, and AMS 4015 and applicable Federal specification designation; the second row shall show the manufacturer's identification and nominal thickness.

5.1.3.1 If peripheral marking is applied to the full piece as produced but partial sheets or plates are supplied, an arrow shall also be applied near one corner indicating the direction of rolling.

5.1.4 Coiled Sheet: Shall be marked near both the outside and inside ends of the coil; the markings shall be applied as in 5.1 or shall appear on a durable tag or label attached to the coil and marked with the information of 5.1. When the sheet is wound on cores, the tag or label may be attached to the core.