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INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

# AEROSPACE MATERIAL SPECIFICATION

SAE AMS 4015K

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Superseding AMS 4015J

## 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:

These products have been used typically for formed parts requiring moderate strength and good corrosion resistance and where welding may be required in fabrication, but usage is not limited to such applications.

2. APPLICABLE DOCUMENTS:

The issue of the following documents in effect on the date of the purchase order form 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 canceled and no superseding document has been specified, the last published issue of that document shall apply.

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 Raw Materials |



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2.2 ASTM Publications:

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

ASTM B 660 Packaging/Packing of Aluminum and Magnesium Products
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 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 or MAM 2355.

TABLE 1 - Composition

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



3.2 Condition:

Annealed in accordance with AMS 2772.

3.3 Properties:

The product shall conform to the following requirements, determined in accordance with AMS 2355 or MAM 2355 on the mill produced size.

3.3.1 Tensile Properties: Shall be as specified in Table 2.

TABLE 2A - Tensile Properties, Inch/Pound Units

| Nominal Thickness Inches | Tensile Strength ksi | Yield Strength at 0.2% Offset ksi | Elongation in 2 Inches or 4D % |
|---|---|---|---|
| 0.006 to 0.007, incl | 25.0 to 31.0 | 9.5 | -- |
| Over 0.007 to 0.012, incl | 25.0 to 31.0 | 9.5 | 14 |
| Over 0.012 to 0.019, incl | 25.0 to 31.0 | 9.5 | 15 |
| Over 0.019 to 0.031, incl | 25.0 to 31.0 | 9.5 | 16 |
| Over 0.031 to 0.050, incl | 25.0 to 31.0 | 9.5 | 18 |
| Over 0.050 to 0.113, incl | 25.0 to 31.0 | 9.5 | 19 |
| Over 0.113 to 0.249, incl | 25.0 to 31.0 | 9.5 | 20 |
| Over 0.249 to 3.000, incl | 25.0 to 31.0 | 9.5 | 18 |

TABLE 2B - Tensile Properties, SI Units

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



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.

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 ANSI H35.2 or ANSI H35.2M.

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 the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to the specified requirements.

4.2 Classification of Tests:

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

4.2.2 Periodic Tests: Bending (3.3.2) is a periodic test 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.

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 tolerances and showing the numerical results of tests on each inspection lot to determine conformance to the other acceptance test requirements. This report shall include the purchase order number, inspection lot number(s), AMS 4015K, size, and quantity. The report shall also identify the producer, the product form, and size from the mill.

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, plate, and circles 12 inches (305 mm) and over in nominal diameter shall be coated, prior to shipment, with a light corrosion-inhibiting oil.