SAE Aerospace
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AEROSPACE MATERIAL SPECIFICATION

SAE AMS 4063D

Issued MAY 1968
Revised AUG 2005

Superseding AMS 4063C

Aluminum Alloy, Clad One Side, Sheet
1.25Mn - 0.12Cu (No. 11-0 Brazing Sheet)
Annealed

(Composition similar to UNS A83003)

1. SCOPE:

1.1 Form:

This specification covers an aluminum alloy in the form of clad sheet.

1.2 Application:

This sheet has been used typically for brazed assemblies which are not subject to heat treatment after joining, 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 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.

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

TO PLACE A DOCUMENT ORDER:
Tel: 877-606-7323 (inside USA and Canada)
Tel: 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: custsvc@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

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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 666/666M	Identification Marking of Aluminum and Magnesium Products

2.3 ANSI Publications:

Available from ANSI, 25 West 43rd Street, 4th Floor, 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 Tables 1 and 2, determined in accordance with AMS 2355.

TABLE 1 - Composition, Core (3003)

Element	min	max
Silicon	6.8	8.2
Iron	--	0.8
Copper	--	0.25
Manganese	--	0.10
Zinc	--	0.20
Other Elements, each	--	0.05
Other Elements, total	--	0.15
Aluminum	remainder	

TABLE 2 - Composition, Cladding (4343)

Element	min	max
Silicon	--	0.6
Iron	--	0.7
Copper	0.05	0.20
Manganese	1.0	1.5
Zinc	--	0.10
Other Elements, each	--	0.05
Other Elements, total	--	0.15
Aluminum	remainder	

3.2 Condition:

Annealed.

3.3 Properties:

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

3.3.1 Tensile Properties: Shall be as specified in Table 3.

TABLE 3A - Tensile Properties, Inch/Pound Units

Nominal Thickness Inches	Tensile Strength ksi, max	Elongation in 2 Inches %, min
0.006 to 0.007, incl	20.0	12
Over 0.007 to 0.012, incl	20.0	15
Over 0.012 to 0.031, incl	20.0	18
Over 0.031 to 0.050, incl	20.0	20
Over 0.050 to 0.249,	20.0	13

TABLE 3B - Tensile Properties, SI Units

Nominal Thickness Millimeters	Tensile Strength mPa, max	Elongation in 50.8 %, min
0.15 to 0.18, incl	138	12
Over 0.18 to 0.30, incl	138	15
Over 0.30 to 0.79, incl	138	18
Over 0.79 to 1.27, incl	138	20
Over 1.27 to 6.32,	138	13

3.3.2 Bending: Sheet shall withstand, without cracking, bending at room temperature flat on itself with axis of bend parallel to the direction of rolling. The clad side may be either the convex or concave side of the sheet for bending tests.

3.3.3 Cladding: Shall be applied to only one face of the core.

3.3.3.1 Cladding Thickness: After rolling, the average cladding thickness shall be as specified in Table 4.

TABLE 4 - Minimum Average Cladding Thickness

Total Thickness of Composite Product Inch	Total Thickness of Composite Product Millimeters	Cladding Thickness % of Total Thickness min Average
Up to 0.063, incl	Up to 1.60, incl	8
Over 0.063 to 0.250, excl	Over 1.60 to 6.35, excl	4

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:

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) and cladding thickness (3.3.3.1) 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.

4.4 Reports:

The vendor of clad sheet shall furnish with each shipment a report stating that the sheet conforms to the composition and showing the results of tests to determine conformance to the other acceptance test requirements and, when performed, to the periodic test requirements. This report shall include the purchase order number, lot number, AMS 4063D, size, and quantity. The report shall also identify the producer, the product form, and the size of the mill product.

4.5 Resampling and Retesting:

Shall be in accordance with AMS 2355.

5. PREPARATION FOR DELIVERY:

5.1 Identification:

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

5.2 Packaging:

5.2.1 Product shall be protected from damage during storage and shipment by a method determined by vendor unless specified by purchaser. Examples of typical protective methods include but are not limited to interleaving with paper or oiling of the surface.

5.2.2 Sheet shall be prepared for shipment in accordance with ASTM B 660 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 A change bar (|) 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 a specification. An (R) symbol to the left of the document title indicates a complete revision of the specification, including technical revision. Change bars and (R) are not used in original publications, nor in specifications that contain editorial changes only.

8.2 This material is occasionally purchased in the as-fabricated condition, similar to the H12 or H14 condition of other aluminum alloys, for ease of handling or other reasons. When so ordered, the mechanical properties presented in this specification are not applicable.

8.3 Terms used in AMS are clarified in ARP1917.

8.4 Dimensions and properties in inch/pound units and the Fahrenheit temperatures are primary; dimensions and properties in SI units and the Celsius temperatures are shown as the approximate equivalents of the primary units and are presented only for information.

8.5 Purchase documents should specify not less than the following:

AMS 4063D
Size of sheet desired
Quantity of sheet desired.