SAE Aerospace
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AEROSPACE MATERIAL SPECIFICATION

SAE AMS4255 | REV. B

Issued 1990-01
Revised 2005-03
Reaffirmed 2012-04

Superseding AMS4255A

Aluminum Allloy, Clad One Side Sheet
0.6Mg - 0.35Si - 0.28Cu (No. 21 Brazing Sheet)
As Fabricated

(Composition similar to UNS A86951)

RATIONALE

AMS4255B 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, clad on one side.

1.2 Application:

This sheet has been used typically for brazed assemblies that are subjected 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
AMS 2772	Heat Treatment of Aluminum Alloy Raw Materials
AS1990	Aluminum Alloy Tempers

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
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/AMS4255B

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	Identificaton 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 Tolerance for Aluminum Mill Products
ANSI H35.2M	Dimensional Tolerance for Aluminum Mill Products (Metric)

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall conform to the percentages by weight shown in Table 1 and Table 2, determined in accordance with AMS 2355.

TABLE 1 - Composition, Core (6951)

Element	min	max
Silicon	0.20	0.50
Iron	--	0.8
Copper	0.15	0.40
Manganese	--	0.10
Magnesium	0.40	0.80
Zinc	--	0.20
Other Elements, each	--	0.05
Other Elements, total	--	0.15
Aluminum	remainder	

TABLE 2 - Composition, Cladding (4343)

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	

3.2 Condition:

As fabricated (F). See AS1990.

3.3 Properties:

The product shall conform to the following requirements, determined in accordance with AMS 2355 on the mill product:

3.3.1 After Solution and Precipitation Heat Treatment: Sheet shall have the following properties after being solution and precipitation heat treated to the -T62 temper in accordance with AMS 2772 for 6951 alloy.

3.3.1.1 Tensile Properties: Shall be as shown in Table 3.

TABLE 3A - Minimum Tensile Properties, Inch/Pound Units

Nominal Thickness Inch	Tensile Strength ksi	Yield Strength at 2% Offset ksi	Elongation in 2 Inches or 4D %
Over 0.010 to 0.019, incl	35.0	30.0	6
Over 0.019 to 0.249, incl	35.0	30.0	8

TABLE 3B - Minimum Tensile Properties, SI Units

Nominal Thickness Millimeters	Tensile Strength MPa	Yield Strength At 2% Offset MPa	Elongation in 50.8 mm or 4 D %
Over 0.25 to 0.48, incl	241	207	6
Over 0.48 to 6.32, incl	241	207	8

3.3.1.2 Bending: Sheet shall withstand, without cracking, bending with the clad side out (convex side) at room temperature through an angle of 180 degrees around a diameter equal to the bend factor shown in Table 4 times the nominal thickness of the sheet with axis of bend parallel to the direction of rolling.

TABLE 4 - Bending Parameters

Nominal Thickness Inch	Nominal Thickness Millimeters	Bend Factor
0.010 to 0.036, incl	0.25 to 0.91, incl	3
Over 0.036 to 0.064, incl	Over 0.91 to 1.63, incl	4
Over 0.064 to 0.128, incl	Over 1.63 to 3.25, incl	5
Over 0.128 to 0.249, incl	Over 3.25 to 6.32, incl	6

3.4 Cladding:

Shall be applied to only one face of the core.

3.4.1 Cladding Thickness: The average cladding thickness shall be as shown in Table 5.

TABLE 5 - Average Cladding Thickness

Total Thickness of Composite Product Inch	Total Thickness of Composite Product Millimeters	Cladding Thickness Percent of Total Thickness min, average	Cladding Thickness Percent of Total Thickness max, average
0.010 to 0.090, incl	0.25 to 2.29, incl	8	12
Over 0.090 to 0.249, incl	Over 2.29 to 6.32, incl	4	6

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 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 after solution and precipitation heat treatment (3.3.1.1), and tolerances (3.6) are acceptance tests and, except for composition, shall be performed on each inspection lot.

4.2.2 Periodic Tests: Bending after solution and precipitation heat treatment (3.3.1.2) and cladding thickness (3.4.1) 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.