AEROSPACE
MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York, N.Y. 10017

AMS 4046A

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ALUMINUM ALLOY SHEET AND PLATE, ALCLAD ONE SIDE
5.6Zn - 2.5Mg - 1.6Cu - 0.25Cr (Alclad one side 7075-T6)

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. APPLICATION: Primarily for structural use including chemically milled parts. Certain design and processing procedures may cause this material to be susceptible to stress corrosion cracking; ARP 823 recommends practices to minimize such conditions.

3. COMPOSITION:

Core (7075)	min	max
Zinc	5.1	6.1
Magnesium	2.1	2.9
Copper	1.2	2.0
Chromium	0.18	0.40
Iron	--	0.7
Silicon	--	0.50
Manganese	--	0.30
Titanium	--	0.20
Other Impurities each	--	0.05
Other Impurities, total	--	0.15
Aluminum	remainder	

Cladding (7072)	min	max
Zinc	0.8	1.3
Silicon + Iron	--	0.7
Magnesium	--	0.10
Copper	--	0.10
Manganese	--	0.10
Other Impurities, each	--	0.05
Other Impurities, total	--	0.15
Aluminum	remainder	

4. CONDITION: Solution and precipitation heat treated.

5. TECHNICAL REQUIREMENTS: When ASTM methods are specified for determining conformance to the ø following requirements, tests shall be conducted in accordance with the issue of the ASTM method listed in the latest issue of AMS 2350.

5.1 Cladding Thickness: After rolling, the average cladding thickness on the clad side shall be as shown. Routine measurements are not required.

Total Thickness of Composite Product Inch	Cladding Thickness % of Total Thickness min	max
Up to 0.062, incl	3.2	--
Over 0.062 to 0.187, incl	2.0	--
Over 0.187 to 0.499, incl	1.2	--
Over 0.499 to 2.000, incl	1.2	3.0

5.2 Tensile Properties: Test specimens shall conform to ASTM E8 and shall be taken across the direction of rolling from widths 9 in. and over and parallel to the direction of rolling from widths less than 9 inches. Sheet type specimens shall be used for material less than 0.5 in. thick and 0.75 in. and over in ø width. Round specimens shall be used for material 0.5 in. and over in thickness and 0.75 in. and over in width. Material under 0.75 in. wide and under 0.5 in. thick may be tested in either full section or by use of round specimens; for such sizes, elongation requirements apply only when round specimens are used.

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Nominal Thickness Inches	Tensile Strength psi, min	Yield Strength at 0.2% Offset or at Extension Indicated (See 5.2.1) psi, min	Extension Under Load in. in 2 in.	Elongation % in 2 in. or 4D, min
0.015 to 0.039, incl	73,000	62,000	0.0171	7
Over 0.039 to 0.062, incl	74,000	64,000	0.0174	8
Over 0.062 to 0.187, incl	75,000	64,000	0.0171	8
Over 0.187 to 0.499, incl	76,000	65,000	0.0168	8
Over 0.499 to 1.000, incl	77,000	66,000	0.0172	6
Over 1.000 to 2.000, incl	77,000	66,000	0.0172	4

5.2.1 Extension under load is based upon the following values of E:

Nominal Thickness Inch	E
Up to 0.062, incl	9,500,000
Over 0.062 to 0.187, incl	9,800,000
Over 0.187 to 0.499, incl	10,000,000
Over 0.499 to 2.000, incl	10,300,000

5.2.2 When a dispute occurs between purchaser and vendor over the yield strength values, yield strength determined by the offset method shall apply.

5.3 Bending: Material shall be capable of withstanding, without cracking, bending at room temperature 180 deg around a diameter equal to the bend factor times the nominal thickness of the material, with axis of bend parallel to direction of rolling. The bare (unclad) surface shall be on the outside of the bend.

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Nominal Thickness Inch	Bend Factor
0.015 to 0.032, incl	7
Over 0.032 to 0.062, incl	8
Over 0.062 to 0.091, incl	9
Over 0.091 to 0.125, incl	10
Over 0.125 to 0.249, incl	11
Over 0.249 to 0.499, incl	13

6. QUALITY: Material shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external imperfections detrimental to fabrication or to performance of parts.

7. TOLERANCES: Unless otherwise specified, tolerances shall conform to all applicable requirements of the latest issue of AMS 2202.

8. REPORTS:

8.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report stating that the product conforms to the chemical composition and technical requirements of this specification. This report shall include the purchase order number, material specification number, thickness, size, and quantity.