AERONAUTICAL
MATERIAL SPECIFICATIONS
SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

AMS 4046

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Revised

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 in all quotations and when acknowledging purchase orders.

2. APPLICATION: Primarily for structural use including chemically milled parts.

3. COMPOSITION:

Core		Cladding	
Zinc	5.1 - 6.1	Zinc	0.8 - 1.3
Magnesium	2.1 - 2.9	Silicon + Iron	0.7 max
Copper	1.2 - 2.0	Magnesium	0.10 max
Chromium	0.18 - 0.40	Copper	0.10 max
Iron	0.7 max	Manganese	0.10 max
Silicon	0.50 max	Other Impurities, each	0.05 max
Manganese	0.30 max	Other Impurities, total	0.15 max
Titanium	0.20 max	Aluminum	remainder
Other Impurities, each	0.05 max		
Other Impurities, total	0.15 max		
Aluminum	remainder		

4. CONDITION: Solution and precipitation heat treated.

5. TECHNICAL REQUIREMENTS:

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
0.062 and under	3.2
Over 0.062 to 0.187, incl	2.0
Over 0.187 to 0.499, incl	1.2

5.2 Tensile Properties: Test specimens shall conform to ASTM E8-57T except from material less than 3/4 in. wide, and shall be cut across the direction of rolling except from material less than 9 in. wide. Elongation requirements apply only to material 3/4 in. and over in width.

Nominal Thickness Inch	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., min
0.015 to 0.039, incl	73,000	62,000	0.0171	7
Over 0.039 to 0.062, incl	74,000	63,000	0.0173	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

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

Nominal Thickness Inch	E
0.062 and under	9,500,000
Over 0.062 to 0.187, incl	9,800,000
Over 0.187 to 0.499, incl	10,000,000

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 0.499 in. and under in thickness shall be capable of withstanding, without cracking, bending at room temperature 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.

Nominal Thickness Inch	Bend Factor
0.020 and under	7
Over 0.020 to 0.062, incl	8
Over 0.062 to 0.089, incl	9
Over 0.089 to 0.124, incl	10
Over 0.124 to 0.249, incl	11
Over 0.249 to 0.499, incl	14

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 the latest issue of AMS 2202 as applicable. Thickness tolerances shall conform to Table II.