AEROSPACE
MATERIAL SPECIFICATIONS

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

AMS 4031

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Revised

ALUMINUM ALLOY SHEET AND PLATE
6.3Cu - 0.30Mn - 0.18Zr - 0.10V - 0.06Ti (2219-0)

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

2. APPLICATION: Primarily for parts requiring high strength for elevated temperatures up to 600 F (315 C). This material is also well suited for cryogenic applications and where welding and good resistance to corrosion are required.

3. COMPOSITION:

Copper	5.8 - 6.8
Manganese	0.20 - 0.40
Zirconium	0.10 - 0.25
Vanadium	0.05 - 0.15
Titanium	0.02 - 0.10
Iron	0.30 max
Silicon	0.20 max
Zinc	0.10 max
Magnesium	0.02 max
Other impurities, each	0.05 max
Other impurities, total	0.15 max
Aluminum	remainder

4. CONDITION: Annealed.

5. TECHNICAL REQUIREMENTS:

5.1 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, max	Yield Strength at 0.2% Offset or at Extension Indicated (E = 10,300,000) psi, max	Extension Under Load in. in 2 in.	Elongation % in 2 in. min
0.040 to 0.499, incl	30,000	16,000	0.0071	12
Over 0.499 to 2.000, incl	30,000	---	---	

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

5.2 Bending: Material 1.000 in. and under in thickness shall be capable of withstanding, without cracking, bending at room temperature through an angle of 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.

Nominal Thickness Inch	Bend Factor
0.250 and under	4
Over 0.250 to 0.750, incl	6
Over 0.750 to 1.000, incl	8

5.3 Properties After Heat Treatment: Material after proper solution and precipitation heat treatment shall conform to the following requirements.

5.3.1 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 Inches	Tensile Strength psi, min	Yield Strength at 0.2% Offset or at Extension Indicated (E = 10,300,000)		Elongation % in 2 in. min
		psi, min	Extension Under Load in. in 2 in.	
0.040 to 1.000, incl	54,000	36,000	0.0110	6
Over 1.000 to 2.000, incl	56,000	36,000	0.0110	6

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

5.3.2 Bending: Material 0.500 in. and under in thickness shall be capable of withstanding, without cracking, bending at room temperature through an angle of 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.

Nominal Thickness Inch	Bend Factor
0.0625 and under	8
Over 0.0625 to 0.250, incl	12
Over 0.250 to 0.500, incl	16

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.