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AEROSPACE

MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

485 Lexington Ave., New York, N.Y. 10017

AMS 4028B

Issued 8-15-58
Revised 9-1-65

ALUMINUM ALLOY SHEET AND PLATE 4.5Cu - 0.85Si - 0.80Mn - 0.50Mg (2014-0)

- 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 formed parts requiring high strength after heat treatment. Certain design and processing procedures may cause this material to be susceptible to stress corrosion cracking after heat treatment; ARP 823 recommends practices to minimize such conditions.

3. COMPOSITION:

	min	max
Copper	3.9	5.0
Silicon	0.50	1.2
Manganese	0.40	1.2
Magnesium	0.20	0.8
Iron	--	1.0
Zinc	--	0.25
Titanium	--	0.15
Chromium	--	0.10
Other Impurities, each	--	0.05
Other Impurities, total	--	0.15
Aluminum	remainder	

4. CONDITION: Annealed.

- 5. TECHNICAL REQUIREMENTS:** The product shall conform to the following requirements; tensile properties shall be determined in accordance with the latest issue of AMS 2355.

5.1 Tensile Properties:

Nominal Thickness Inch	Tensile Strength psi, max	Yield Strength at 0.2% Offset or at Extension Indicated (E = 10,500,000)		Elongation % in 2 in. or 4D min
		psi, max	in. in 2 in.	
0.020 to 0.499, incl	32,000	16,000	0.0070	16
Over 0.499 to 1.000, incl	32,000	--	--	10

- 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.
- 5.1.2** Tensile properties of material over 1.000 in. in thickness shall be as agreed upon by purchaser and vendor.

- 5.2 **Bending:** Material 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 material with axis of bend parallel to direction of rolling.

Nominal Thickness Inch	Bend Factor
0.020 to 0.124, incl	2
Over 0.124 to 0.249, incl	4
Over 0.249 to 0.499, incl	6

- 5.3 **Properties After Heat Treatment:** Material after proper solution and precipitation heat treatment shall have the following properties.

5.3.1 **Tensile Properties:**

Nominal Thickness Inch	Tensile Strength psi, min	Yield Strength at 0.2% Offset or at Extension Indicated (E = 10,500,000)		Elongation % in 2 in. or 4D min
		psi, min	Extension Under Load in. in 2 in.	
0.020 to 0.039, incl	64,000	57,000	0.0149	6
Ø Over 0.039 to 0.249, incl	66,000	58,000	0.0150	7
Over 0.249 to 0.499, incl	67,000	59,000	0.0152	7
Over 0.499 to 1.000, incl	67,000	59,000	0.0152	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.

- 5.3.1.2 Tensile properties of material over 1.000 in. in thickness shall be as agreed upon by purchaser and vendor.

- 5.3.2 **Bending:** Material 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 material with axis of bend parallel to direction of rolling.

Nominal Thickness Inch	Bend Factor
0.020 to 0.039, incl	5
Over 0.039 to 0.050, incl	6
Over 0.050 to 0.124, incl	8
Over 0.124 to 0.249, incl	10
Over 0.249 to 0.499, incl	12

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.