

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
New York City

AMS 4035c

Issued 6-13-40

Revised 6-15-52

ALUMINUM ALLOY SHEET AND PLATE 4.5Cu - 1.5Mg - 0.6Mn (24S-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 structural parts which will be subsequently heat treated.
3. **COMPOSITION:**

Copper	3.8 - 4.9
Magnesium	1.2 - 1.8
Manganese	0.30 - 0.9
Iron	0.5 max
Silicon	0.5 max
Chromium	0.10 max
Zinc	0.10 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, 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	Elongation % in 2 in., min
0.500 and under	32,000	12

- 5.2 **Bending:** Material shall withstand, without cracking, bending at room temperature through an angle of 180 degrees around a diameter equal to the bend factor shown below times the nominal thickness of the material, with axis of bend parallel to direction of rolling.

Nominal Thickness Inch	Bend Factor
0.032 and under	0
Over 0.032 - 0.064, incl	1
Over 0.064 - 0.128, incl	2
Over 0.128 - 0.249, incl	4
Over 0.249 - 0.500, incl	6

Section 7C of the SAE Technical Board rules provides that: "All technical reports, including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to any SAE standard or recommended practice, and no commitment to conform to or be guided by any technical report, in formulating and approving technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents."

- 5.3 Properties After Solution Heat Treatment: Unless otherwise specified, the material after proper solution heat treatment and aging for not less than four days at room temperature shall conform to the following requirements.

- 5.3.1 Tensile Properties: Test specimens shall conform to ASTM E8, 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 (E=10,500,000)		Elongation % in 2 in., min
		psi, min	Extension Under Load inch in 2 in.	
0.020 and under	62,000	40,000	0.0116	12
Over 0.020 - 0.051, incl	62,000	40,000	0.0116	15
Over 0.051 - 0.249, incl	62,000	40,000	0.0116	17
Over 0.249 - 0.500, incl	62,000	38,000	0.0112	12

- 5.3.2 Bending: Material shall withstand, without cracking, bending at room temperature through an angle of 180 degrees around a diameter equal to the bend factor shown below times the nominal thickness of the material, with axis of bend parallel to direction of rolling.

Nominal Thickness Inch	Bend Factor
0.040 and under	4
Over 0.040 - 0.051, incl	5
Over 0.051 - 0.128, incl	6
Over 0.128 - 0.249, incl	8
Over 0.249 - 0.500, incl	10

6. QUALITY: Material shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external defects 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.

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 chemical composition and tensile properties of the material conform to the requirements specified. This report shall include the purchase order number, material specification number, thickness, size, and quantity. When material is Government source inspected, reports will not be required.