

AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 4530B

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COPPER-BERYLLIUM ALLOY SHEET AND STRIP 98Cu - 1.9Be Solution Treated

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. FORM: Sheet, strip, and plate.
3. APPLICATION: Primarily for parts requiring high strength with good electrical conductivity or lack of magnetic susceptibility.
4. COMPOSITION:

Beryllium	1.8 - 2.05
Nickel + Cobalt	0.20 min
Nickel + Cobalt + Iron	0.60 max
Copper + Total Named Elements	99.5 min

5. CONDITION: Solution heat treated, in a suitable condition for precipitation heat treatment.

6. TECHNICAL REQUIREMENTS:

- 6.1 Properties As Received:

- 6.1.1 Tensile Properties:

Tensile Strength, psi	60,000 - 78,000
Elongation, % in 2 in.	
Nominal Thickness, in.	
Under 0.010	30 min
0.010 and over	35 min

- 6.1.2 Hardness: Material should have hardness as follows, or equivalent, but shall not be rejected on the basis of hardness if the tensile property requirements are met:

Nominal Thickness, Inch	Hardness, Rockwell
0.010 to 0.030, incl	15T 74 - 86
Over 0.030 to 0.050, incl	30T 45 - 67
Over 0.050 to 0.075, incl	F 82 - 101
Over 0.075	B 43 - 77

- 6.1.3 Microstructure: Shall reveal a minimum of beta phase constituent.

- 6.2 Properties After Precipitation Heat Treatment: Material after being heated at 600 F \pm 5 for 3 hr and cooled in air shall conform to the following requirements:

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 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.

6.2.1 Tensile Properties:

Tensile Strength, psi	160,000 min
Yield Strength at 0.2% offset or at 0.0170 inch in 2 in. extension under load, psi	120,000 min

6.2.2 Hardness:

Nominal Thickness, Inch	Hardness, Rockwell
0.010 to 0.020, incl	15N 77 - 81
Over 0.020 to 0.065, incl	30N 54 - 60
Over 0.065	C 34 - 40

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

8. **TOLERANCES:** Unless otherwise specified, tolerances shall conform to the latest issue of AMS 2222 as applicable. Thickness, width and straightness tolerances shall be as specified below:

8.1 **Thickness:** Table II.

8.2 **Width:** Not required.

8.3 **Straightness:** Not required.

9. REPORTS:

9.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report showing the results of tests to determine conformance to the requirements of this specification or stating that the chemical composition and tensile properties of the product as received conform to the requirements specified. This report shall include the purchase order number, material specification number, thickness, size, and quantity.

9.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number, contractor or other direct supplier of material, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.

10. **IDENTIFICATION:** Individual pieces or bundles shall have attached a metal tag stamped with the purchase order number, AMS 4530B, and nominal thickness, or shall be boxed and the box marked with the same information.

11. **REJECTIONS:** Material not conforming to this specification or to authorized modifications will be subject to rejections.