

AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 4532A

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COPPER-BERYLLIUM ALLOY SHEET AND STRIP

98Cu - 1.9Be

Solution Treated, Half Hard Temper

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

2. FORM: Sheet and strip.

3. APPLICATION: Primarily for parts requiring high strength with good electrical conductivity or lack of magnetic susceptibility. This material has higher strength and lower ductility than AMS 4530.

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 and cold rolled to half hard temper, in a suitable condition for precipitation heat treatment.

6. TECHNICAL REQUIREMENTS:

6.1 Properties As Received:

6.1.1 Tensile Properties:

Tensile Strength, psi	85,000 - 100,000
Elongation, % in 2 in.	
Nominal Thickness, in.	

Under 0.010	3 min
0.010 and over	5 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 0.020, incl	15T 88.5 - 91.5
Over 0.020 to 0.045, incl	30T 74 - 80
Over 0.045	B 87 - 98

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 2 hr shall conform to the following requirements.

6.2.1 Tensile Properties:

Tensile Strength, psi	180,000 min
Yield Strength at 0.2% offset or at 0.0180 inch in 2 in. extension under load, psi	130,000 min

6.2.2 Hardness:

Nominal Thickness Inch	Hardness, Rockwell
0.010 to 0.020, incl	15N 80 min
Over 0.020 to 0.060, incl	30N 59 min
Over 0.060	C 59 min

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 4532A, 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 rejection.