AEROSPACE
MATERIAL SPECIFICATIONS

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

AMS 4530C

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COPPER-BERYLLIUM ALLOY SHEET, STRIP, AND PLATE
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. APPLICATION: Primarily for parts requiring high strength with good electrical conductivity or lack of magnetic susceptibility.

3. COMPOSITION:

	min	max
Beryllium	1.80	2.05
Nickel + Cobalt	0.20	--
Nickel + Cobalt + Iron	--	0.6
Copper + Total Named Elements	99.5	--

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

5. TECHNICAL REQUIREMENTS:

5.1 Tensile Properties:

Tensile Strength, psi	60,000 - 78,000
Elongation, % in 2 in. or 4D	35 min

5.1.1 Elongation requirements apply only to material 0.004 in. and over in nominal thickness.

5.2 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, Inches	Hardness, Rockwell
0.010 to 0.030, incl	15T 75 - 85
Over 0.030 to 0.050, incl	30T 46 - 67
Over 0.050 to 0.075, incl	F 83 - 102
Over 0.075	B 45 - 78

5.3 Microstructure: Shall reveal a minimum of beta phase constituent. Any beta phase present shall be fine and well dispersed and shall not be in the form of stringers. Material may be precipitation heat treated as in 5.5 before examination.

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5.4 Grain Count and Grain Size: The total number of grains in the thickness of material, reported as the average of 5 determinations one thickness of material apart, and the average grain size of each of two specimens, determined in accordance with the issue of ASTM E112 listed in the latest issue of AMS 2350, shall be as specified below; determinations shall be made on a plane perpendicular to the surface and parallel to the direction of rolling. Material may be precipitation heat treated as in 5.5 before examination.

Nominal Thickness Inch	Grain Count min	Average Grain Size mm, max
Over 0.004 to 0.006, incl	6	--
Over 0.006 to 0.008, incl	7	--
Over 0.008 to 0.010, incl	8	--
Over 0.010 to 0.030, incl	--	0.035
Over 0.030 to 0.090, incl	--	0.045
Over 0.090 to 0.188, incl	--	0.060

5.5 Properties After Precipitation Heat Treatment: Material shall conform to the following requirements after being precipitation heat treated by heating to 600 F ± 5 (315.6 C ± 2.8), holding at heat for 3 hr, and cooling in air:

5.5.1 Tensile Properties:

Nominal Thickness Inches	Tensile Strength psi min	Tensile Strength psi max	Yield Strength at 0.2% Offset or at Extension Indicated (E = 18,500,000) psi, min	Yield Strength at 0.2% Offset or at Extension Indicated (E = 18,500,000) Extension Under Load in. in 2 in.	Elongation % in 2 in. or 4D, min
Up to 0.004, incl	165,000	--	140,000	0.0191	--
Over 0.004 to 0.020, incl	165,000	--	140,000	0.0191	3
Over 0.020	165,000	190,000	140,000	0.0191	3

5.5.2 Hardness:

Nominal Thickness Inches	Hardness, Rockwell
0.010 to 0.020, incl	15N 78 - 82
Over 0.020 to 0.065, incl	30N 56 - 61
Over 0.065	C 36 - 42

6. QUALITY: Material shall be uniform in quality and condition, clean, sound, smooth, 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 2222 for Refractory Alloys.