

AERONAUTICAL MATERIAL SPECIFICATION

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AMS4650A

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BERYLLIUM - COPPER ALLOY Wrought

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

2. FORM: Rods, bars, forgings, or as ordered.

3. COMPOSITION:

Beryllium	1.90 - 2.20
Other additive Elements	0.50 max
Total Impurities	0.30 max
Copper	remainder

Beryllium up to 2.30 is permissible in rods and bars 1 inch and larger in diameter or thickness.

4. CONDITION: (a) Solution treated and cold drawn, unless otherwise specified, to conform to the following hardness limits for the size ranges indicated:

<u>Diameter or Thickness, inches</u>	<u>Brinell Hardness</u>
1.5 and less	160 - 223
Over 1.5	200 max

(b) After aging at $575^{\circ}\text{F} \pm 10^{\circ}\text{F}$ for 3 hours the hardness midway between center and surface shall be not less than Rockwell C 38.

(c) Stock ordered for forging must be supplied in the condition and finish ordered by the forging manufacturer.

5. QUALITY: (a) The material shall be uniform in quality and temper, clean, sound, smooth, and free from foreign material and all internal and external defects which adversely affect its strength, use or machinability. It must not reveal defects during fabrication or warp during the precipitation treatment.

(b) The cross sectional area of rods, bars and shapes shall be less than half that of the ingots from which they were formed, i.e., rods, bars and shapes must have been subjected to over 50% reduction of area during formation.

(c) Forgings shall be made from bar stock and not from ingots or castings.

6. TOLERANCE: The following variations in diameter or thickness of rods and bars are permissible; all dimensions are in inches:

<u>Diameter or Thickness</u>	<u>Tolerance, plus or minus</u>
0.5 and less	0.005
Over 0.5 to 1.0 incl.	0.008
Over 1.0 to 2.5 "	0.010
Over 2.5	0.015