



AEROSPACE MATERIAL SPECIFICATION

AMS4534™**REV. E**

Issued 1991-07
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Revised 2021-04

Superseding AMS4534D

Copper-Beryllium Alloy, Bars and Rods
98Cu - 1.9Be
Solution Heat Treated, Cold Worked, and
Precipitation Heat Treated (TH04, formerly HT)
(Composition similar to UNS C17200)

RATIONALE

AMS4534E corrects errors related to product size ranges in Tables 2A and 2B.

1. SCOPE

1.1 Form

This specification covers a copper-beryllium alloy in the form of bars and rods up to 3.000 inches (76.20 mm), inclusive, in nominal diameter or least distance between parallel sides (see 8.7).

1.2 Application

These products have been used typically for parts requiring a combination of high strength, wear resistance, and corrosion resistance, and where thermal conductivity, electrical conductivity, and low magnetic susceptibility may be important, but usage is not limited to such applications.

1.3 Safety - Hazardous Materials

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

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Documents
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2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS2221 Tolerances, Copper and Copper Alloy Bars and Rods

AMS2750 Pyrometry

ARP1917 Clarification of Terms Used in Aerospace Metals Specifications

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM B249/B249M General Requirements for Wrought Copper and Copper-Alloy Rod, Bar, and Shapes

ASTM B601 Temper Designations for Copper and Copper Alloys—Wrought and Cast

ASTM E3 Preparation of Metallographic Specimens

ASTM E8/E8M Tension Testing of Metallic Materials

ASTM E18 Rockwell Hardness of Metallic Materials

ASTM E112 Determining Average Grain Size

ASTM E140 Hardness Conversion Tables for Metals Relationship Among Brinell Hardness, Vickers Hardness, Rockwell Hardness, Superficial Hardness, Knoop Hardness, Scleroscope Hardness, and Leeb Hardness

ASTM E478 Chemical Analysis of Copper Alloys

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall conform to the percentages by weight shown in Table 1, determined in accordance with ASTM E478 or by other analytical methods acceptable to purchaser.

Table 1 - Composition

Element (3.1.1)	Min	Max
Beryllium	1.80	2.00
Nickel + Cobalt	0.20	--
Nickel + Cobalt + Iron	--	0.6
Aluminum	--	0.20
Silicon	--	0.20
Copper (3.1.2)	remainder	
Sum of Named Elements (3.1.3)	99.5	--