



AEROSPACE MATERIAL SPECIFICATION

AMS4595™

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Reaffirmed 2018-05

Copper Nickel Tin Alloy Plate
77Cu – 15Ni – 8Sn
Solution Annealed and Spinodal Hardened (TX 00)
(Composition similar to UNS C72900)

RATIONALE

AMS4595 is a new specification for copper-nickel-tin alloy plate.

1. SCOPE

1.1 Form

This specification covers a copper-nickel-tin alloy in the form of plate .

1.2 Application

Plate products are for use in parts requiring high strength, wear resistance, and corrosion resistance at moderate temperatures, but usage is not limited to such applications.

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.

2.1 SAE Publications

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

AMS2750 Pyrometry

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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 B 248/B 248M General Requirements for Wrought Copper and Copper-Alloy Plate, Sheet, Strip, and Rolled Bar

ASTM E 8/E 8M Tension Testing of Metallic Materials

ASTM E 18 Rockwell Hardness of Metallic Materials

ASTM E 478 Chemical Analysis of Copper Alloys

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall conform to the percentages by weight shown in Table 1, determined by wet chemical methods in accordance with ASTM E 478, by spectrochemical methods, or by other analytical methods acceptable to the purchaser.

TABLE 1 - COMPOSITION

Element (3.1.1)	min	max
Nickel (+ Cobalt)	14.5	15.5
Tin	7.5	8.5
Iron	--	0.50
Zinc	--	0.50
Manganese	--	0.30
Columbium	--	0.10
Magnesium	--	0.15
Lead	--	0.02
Copper (3.1.2)	remainder	
Copper + sum of Named Elements (3.1.3)	99.5	

3.1.1 These composition limits do not preclude the presence of other elements. Limits may be established and analysis required for unnamed elements by agreement between the manufacturer or supplier and purchaser.

3.1.2 Copper may be reported as "remainder", or as the difference between the sum of results for all elements and 100%, or as the result of direct analysis.

3.1.3 When all the elements in the table are analyzed, the sum shall be 99.5% minimum, but such determination is not required for routine acceptance of each lot.

3.2 Condition

Vertically continuous cast, hot worked and, if necessary, cold finished, solution annealed and spinodal hardened to the TX 00 temper (See 8.2).