

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard



AMS 4710F

Issued DEC 1942

Revised SEP 1996

Superseding AMS 4710E

TIN BRONZE CASTINGS SAND AND CENTRIFUGAL 87.5Cu - 10Sn - 2Zn As Cast

This specification has been declared "NONCURRENT" by the Aerospace Materials Division, SAE, as of September 1996. It is recommended, therefore, that this specification not be specified for new designs.

This cover sheet should be attached to the "E" revision of the subject specification.

"NONCURRENT" refers to those materials which have previously been widely used and which may be required on some existing designs in the future. The Aerospace Materials Division, however, does not recommend these as standard materials for future use in new designs. Each of these "NONCURRENT" specifications is available from SAE upon request.

PREPARED UNDER THE JURISDICTION OF AMS COMMITTEE "D"

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**AEROSPACE
 MATERIAL
 SPECIFICATION**

Submitted for recognition as an American National Standard

AMS 4710E
 Issued 12-1-42
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Superseding AMS 4710D

 BRASS WIRE, TINNED
 65Cu - 35Zn
 Annealed (061)

UNS C27000

1. SCOPE:

1.1 Form: This specification covers one type of brass in the form of wire.

1.2 Application: Primarily for locking wire.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2224 - Tolerances, Copper and Copper Alloy Wire

MAM 2224 - Tolerances, Metric, Copper and Copper Alloy Wire

AMS 2350 - Standards and Test Methods

2.2 ASTM Publications: Available from ASTM, 1916 Race Street, Philadelphia, PA 19103.

ASTM B 250 - General Requirements for Wrought Copper-Alloy Wire

ASTM B 250M - General Requirements for Wrought Copper-Alloy Wire (Metric)

ASTM E 112 - Determining Average Grain Size

ASTM E 478 - Chemical Analysis of Copper Alloys

REAFFIRMED**APR 94**

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2.3 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Military Specifications:

MIL-C-3993 - Copper and Copper-Base Alloy Mill Products, Packaging of

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

3.1.1 Basis Wire: Shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASTM E 478, by spectrochemical methods, or by other analytical methods acceptable to purchaser:

	min	max
Copper	63.0	68.5
Lead	--	0.10
Iron	--	0.07
Zinc + Sum of Named Elements (3.1.1.1)	99.17	--
Zinc (3.1.1.2)		remainder

3.1.1.1 Applicable only when zinc is determined by direct analysis.

3.1.1.2 Applicable when zinc is not determined by analysis. The reported (certified) value is the difference between the sum of all other specified elements and 100%; and will therefore include unnamed elements. Limits for unnamed elements may be established by agreement between purchaser and manufacturer or supplier.

3.1.2 The basis wire shall be uniformly coated with pure tin.

3.2 Condition: Cold-drawn or cold-rolled, and annealed (061) (See 8.2).

3.3 Properties: Wire shall conform to the following requirements:

3.3.1 Grain Size: Average grain size shall be 0.035 - 0.070 mm, determined in accordance with ASTM E 112 on a longitudinal section.

3.3.2 Twist: Wire under 0.050 inch (1.27 mm) in diameter shall show no evidence of breakage after two strands of wire are twisted around each other ten times per inch (25 mm) of length.

3.4 Quality: Wire, as received by purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from imperfections detrimental to usage of the wire.

3.5 Tolerances: Shall conform to AMS 2224 or MAM 2224 as applicable to nonrefractory alloys.

4. QUALITY ASSURANCE PROVISIONS:

- 4.1 Responsibility for Inspection: The vendor of wire shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.4. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the wire conforms to the requirements of this specification.
- 4.2 Classification of Tests: Tests to determine conformance to all technical requirements of this specification are classified as acceptance tests and shall be performed on each lot.
- 4.3 Sampling: Shall be in accordance with ASTM B 250 or ASTM B 250M.
- 4.4 Reports: The vendor of wire shall furnish with each shipment a report showing the results of tests on each lot to determine conformance to the technical requirements of this specification. This report shall include the purchase order number, lot number, AMS 4710E, nominal size, and quantity.
- 4.5 Resampling and Retesting: If any specimen used in the above tests fails to meet the specified requirements, disposition of the wire may be based on the results of testing three additional specimens for each original nonconforming specimen. Failure of any retest specimen to meet the specified requirements shall be cause for rejection of the wire represented and no additional testing shall be permitted. Results of all tests shall be reported.

5. PREPARATION FOR DELIVERY:

- 5.1 Wire shall be supplied on spools or in coils except when straight lengths are ordered.
- 5.2 Identification:
- 5.2.1 Spools and Coils: Shall be marked with a durable tag or label showing not less than the manufacturer's identification, purchase order number, AMS 4710E, nominal size, and quantity; boxes or drums shall be marked with the same information.
- 5.2.2 Straight Lengths: Shall have attached to each bundle or enclosed in each box a durable tag or label marked with the information of 5.2.1; when boxed, the box shall be marked with the same information.
- 5.3 Packaging:
- 5.3.1 Spools and Coils: Coils shall be individually wrapped with waterproof paper or packed in waterproof drums. Spools, when ordered, shall be boxed.
- 5.3.2 Straight Lengths: Shall be bundled or boxed.