

AEROSPACE MATERIAL SPECIFICATION

SAE AMS4712

REV. F

Issued 1945-07
Revised 2004-04
Reaffirmed 2012-02

Superseding AMS4712E

Copper Alloy, Wire
65Cu - 35Zn
Annealed (061)

(Composition similar to UNS C27000)

RATIONALE

AMS4712F has been reaffirmed to comply with the SAE five-year review policy.

1. SCOPE:

1.1 Form:

This specification covers a copper-zinc alloy (brass) in the form of wire.

1.2 Application:

This wire has been used typically for woven wire screening, 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, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or www.sae.org.

AMS 2224

Tolerances, Copper and Copper Alloy Wire

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<http://www.sae.org/technical/standards/AMS4712F>**

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959 or www.astm.org.

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

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 purchaser.

TABLE 1 - Composition

Element (3.1.1)	min	max
Copper	63.0	68.5
Lead	--	0.10
Iron	--	0.07
Zinc (3.1.2) remainder	(See 3.1.2)	--
Sum of Named Elements (3.1.3)	99.7	

- 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 Zinc 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 named elements in Table 1 are analyzed, the sum shall be 99.7 percent minimum, but such determination is not required for routine acceptance of each lot.

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 Average Grain Size: Shall be 0.035 to 0.070 mm, determined in accordance with ASTM E 112 on a longitudinal section.
- 3.3.2 Twisting: Wire under 0.050 inch (1.27 mm) in diameter shall show no evidence of breaking 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 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 the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the wire conforms to specified requirements.

4.2 Classification of Tests:

All technical requirements are acceptance tests and shall be performed on each lot. A lot shall consist of all wire from the same heat or melt, drawn at the same time, and presented for acceptance at the same time.

4.3 Sampling and Testing:

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 for chemical composition, average grain size, and twisting on each lot and stating that the wire conforms to the other technical requirements. This report shall include the purchase order number, lot number, AMS 4712F nominal size, and quantity.

4.5 Resampling and Retesting:

If any specimen used in the above tests fails to meet specified requirements, disposition of the wire may be based on the results of testing two additional specimens for each original nonconforming specimen. Failure of any retest specimen to meet specified requirements shall be cause for rejection of the wire represented. 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 legibly marked with a durable tag or label showing not less than the manufacturer's identification, purchase order number, AMS 4712F, 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 legibly 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.

5.3.3 Wire shall be prepared for shipment in accordance with commercial practice and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of the wire to ensure carrier acceptance and safe delivery.

6. ACKNOWLEDGMENT:

A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

7. REJECTIONS:

Wire not conforming to this specification, or to modifications authorized by purchaser, will be subject to rejection.