



AEROSPACE MATERIAL SPECIFICATION

AMS4505

REV. K

Issued 1940-01
Revised 2009-03
Reaffirmed 2014-10

Superseding AMS4505J

Copper Alloy (Brass), Sheet, Strip, and Plate
70Cu - 30Zn
Annealed (OS035)
(Composition similar to UNS C26000)

RATIONALE

AMS4505K 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 sheet, strip, and plate.

1.2 Application

These products have been used typically for formed and drawn parts, 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.

AMS2222 Tolerances, Copper and Copper Alloy Sheet, Strip, and Plate

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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	General Requirements for Wrought Copper and Copper-Alloy Plate, Sheet, Strip, and Rolled Bar
ASTM B 248M	General Requirements for Wrought Copper and Copper-Alloy Plate, Sheet, Strip, and Rolled Bar (Metric)
ASTM E 18	Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials
ASTM E 112	Determining the 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	68.5	71.5
Lead	--	0.07
Iron	--	0.05
Zinc (3.1.2)	remainder	--
Sum of Named Elements (3.1.1)	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 the elements in the table are analyzed, the sum shall be 99.7% minimum, but such determination is not required for routine acceptance of each lot.

3.2 Condition

Cold rolled and fully recrystallized, annealed (OS035) temper (See 8.2).

3.3 Properties

The product shall conform to the following requirements:

3.3.1 Average Grain Size

Shall be 0.025 to 0.050 mm, determined in accordance with ASTM E 112.

3.3.2 Hardness

Shall be 25 to 38 HR30TW, or equivalent, determined in accordance with ASTM E 18.

3.4 Quality

The product, 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 product.

3.5 Tolerances

Shall conform to AMS2222 as applicable to nonrefractory alloys.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

The vendor of the product 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 product conforms to specified requirements.

4.2 Classification of Tests

All technical requirements are acceptance tests and shall be performed on each lot.

4.3 Sampling and Testing

Shall be in accordance with ASTM B 248 or ASTM B 248M.

4.4 Reports

The vendor of the product shall furnish with each shipment a report showing the results of tests on each lot to determine conformance to all technical requirements. This report shall include the purchase order number, lot number, AMS4505K, 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 product may be based on the results of testing two additional specimens for each original nonconforming specimen. Failure of any retest specimen to meet the specified requirements shall be cause for rejection of the product represented. Results of all tests shall be reported.

5. PREPARATION FOR DELIVERY

5.1 Identification

The product shall be identified as in 5.1.1 unless line marking as in 5.1.2 is specified by purchaser.

5.1.1 Each sheet, strip, and plate shall be legibly marked near one end, coils being marked near the outside end, with AMS4505K, lot number, manufacturer's identification, and nominal thickness, using any suitable marking fluid. As an alternative method, individual pieces or bundles shall have attached a durable tag marked with the above information or shall be boxed and the box marked with the same information.

5.1.2 When specified by purchaser, each sheet, strip, and plate shall be legibly marked on one face, in the respective location indicated below, with AMS4505K, lot number, manufacturer's identification, and nominal thickness. The characters shall be applied using a suitable marking fluid removable in hot alkaline cleaning solution without rubbing. The markings shall have no deleterious effect on the product or its performance and shall be sufficiently stable to withstand normal handling. The specification number, manufacturer's identification, and nominal thickness shall be continuously line marked; the lot number may be included in the line marking or may be marked at one location on each piece.

5.1.2.1 Flat Strip 6 Inches (152 mm) and Under in Width

Shall be marked in one or more lengthwise rows of characters recurring at intervals not greater than 3 feet (914 mm).