AEROSPACE MATERIAL SPECIFICATION

AMS4508	REV. H

Issued 1948-05
Revised 2000-10
Reaffirmed 2015-03

Superseding AMS4508G

Copper-Zinc Alloy, Laminated Sheet
70Cu - 30Zn
Surface Bonded

UNS C26000

RATIONALE

AMS4508H 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 laminated sheet.

1.2 Application:

This sheet has been used typically for shims in which thickness is adjusted by removal of laminations as required, 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 canceled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

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 478	Chemical Analysis of Copper Alloys

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: +1 724-776-4970 (outside USA)
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http://www.sae.org/technical/standards/AMS4508H

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		(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% minimum, but such determination is not required for routine acceptance of each lot.

3.2 Condition:

Laminated shim stock shall be fabricated from brass sheet in the quarter-hard (HO1) or harder temper (See 8.2).

3.3 Properties:

Sheet shall conform to the following requirements:

3.3.1 Fabrication:

3.3.1.1 Stock shall consist of laminations, each 0.002 inch ± 0.0002 (0.05 mm ± 0.005) thick or 0.003 inch ± 0.0003 (0.08 mm ± 0.008) thick, or one-quarter or one-half of such laminations combined with a single solid lamination, as ordered, surface bonded together so that individual laminations may be peeled for adjustment of shim thickness and the laminations cut without separation of the remaining laminations.

3.3.1.1.1 Thickness of each layer of adhesive shall not exceed 0.0003 inch (0.008 mm).

3.3.1.2 Sheet shall consist of the thickness and combinations of laminations and solid base shown in Table 2.

TABLE 2 - Lamination Thickness and Combination

Nominal Thickness of Shim Stock Inch	Nominal Thickness of Shim Stock Millimeter	All Laminated Laminations Each 0.002 Inch (0.05 mm)	All Laminated Laminations Each 0.003 Inch (0.08 mm)	Half Solid, Half Laminated, Laminations Each 0.002 Inch (0.05 mm)	Half Solid, Half Laminated, Laminations Each 0.003 Inch (0.08 mm)	Three-Quarters Solid, One-Quarter Laminated, Laminations Each 0.002 Inch (0.05 mm)	Three-Quarters Solid, One-Quarter Laminated, Laminations Each 0.003 Inch (0.08 mm)
0.006	0.15	X					
0.008	0.20	X					
0.010	0.25	X					
0.016	0.41	X	X				
0.020	0.51	X	X				
0.032	0.81	X	X				
0.047	1.19	X	X				
0.062	1.57	X	X	X	X		
0.094	2.39	X	X	X	X		
0.125	3.18	X	X	X	X	X	X

3.4 Quality:

3.4.1 Sheet, as received by purchaser, shall be uniform in quality and condition, sound, and free from imperfections detrimental to usage of the sheet.

3.4.2 Laminations shall be bonded together so that any shape can be cut out of the shim stock without causing the laminations in the shape to separate. Normal handling shall not cause separation of laminations.

3.5 Tolerances:

Shall be as specified in Table 3.

TABLE 3A - Tolerances, Inch/Pound Units

Nominal Total Thickness Inch	Tolerance Inch Plus	Tolerance Inch Minus
Up to 0.008, incl	0.001	0.0005
Over 0.008 to 0.010, incl	0.0015	0.0005
Over 0.010 to 0.016, incl	0.0015	0.001
Over 0.016 to 0.021, incl	0.002	0.001
Over 0.021 to 0.033, incl	0.003	0.002
Over 0.033 to 0.048, incl	0.005	0.002
Over 0.048 to 0.063, incl	0.006	0.002
Over 0.063 to 0.080, incl	0.007	0.002
Over 0.080 to 0.094, incl	0.009	0.003
Over 0.094 to 0.109, incl	0.010	0.003
Over 0.109 to 0.125, incl	0.012	0.003

TABLE 3B - Tolerances, SI Units

Nominal Total Thickness Millimeter	Tolerance Millimeter Plus	Tolerance Millimeter Minus
Up to 0.20, incl	0.02	0.013
Over 0.20 to 0.25, incl	0.038	0.013
Over 0.25 to 0.41, incl	0.038	0.025
Over 0.41 to 0.53, incl	0.05	0.025
Over 0.53 to 0.84, incl	0.08	0.05
Over 0.84 to 1.22, incl	0.13	0.05
Over 1.22 to 1.60, incl	0.15	0.05
Over 1.60 to 2.03, incl	0.18	0.05
Over 2.03 to 2.39, incl	0.23	0.08
Over 2.39 to 2.77, incl	0.25	0.08
Over 2.77 to 3.18, incl	0.30	0.08

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The vendor of sheet 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 sheet conforms to specified requirements.