ADOPTION NOTICE

SAE-AMS7320, “Rings, Sealing, Cast Leaded-Tin Bronze 80Cu - 16Sn - 5Pb As Cast”, was adopted on 29-SEP-95 for use by the Department of Defense (DoD). Proposed changes by DoD activities must be submitted to the DoD Adopting Activity: Commander, Defense Industrial Supply Center, 700 Robbins Avenue, Philadelphia, PA 19111-5096. DoD activities may obtain copies of this standard from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094. The private sector and other Government agencies may purchase copies from the Society of Automotive Engineers Inc., 400 Commonwealth Drive, Warrendale, PA 15096-0001.

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AEROSPACE MATERIAL SPECIFICATION

An American National Standard

SAE AMS 7320D

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Superseding AMS 7320C

RINGS, SEALING, CAST LEADED-TIN BRONZE
80Cu - 16Sn - 5Pb
As Cast

UNS C92800

1. SCOPE:

1.1 Form: This specification covers a cast leaded-tin bronze in the form of sealing rings.

1.2 Application: Primarily for drilled oil seal rings.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications 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 2350 - Standards and Test Methods

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM E18 - Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials
ASTM E54 - Chemical Analysis of Special Brasses and Bronzes

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 Standards:

MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of

3. TECHNICAL REQUIREMENTS:

3.1 Composition: Shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASTM E54 or by spectrographic or other analytical methods approved by purchaser:

	min	max
Copper	78.0 -	82.0
Tin	15.0 -	17.0
Lead	4.0 -	6.0
Copper + Tin + Lead	99.0	--

3.2 Condition: As cast.

3.2.1 Rings shall be finished all over. Periphery shall be turned smooth, ID shall be turned smooth or ground, and sides shall be ground or lapped. Markings resultant from hammering or rolling operations will be acceptable.

3.3 Properties: Rings shall conform to the following requirements:

3.3.1 Hardness: Shall be 72 - 82 HRB, or equivalent, determined in accordance with ASTM E18.

3.3.2 Light-Tightness of Periphery: A ring, placed in a circular gage having ID equal to the gage diameter of the ring ±0.0005 in. (±0.012 mm), shall have not less than 85% of the ring periphery light-tight, fuzzy light being considered as light-tight. A ring shall be rendered 100% light-tight by application of radial load not greater than 5 1b (22 N) to the ID of the ring. Light source shall be a 40 W lamp.

3.4 Quality: Rings, as received by purchaser, shall be uniform in quality and condition, clean, sound, and free from foreign materials and from imperfections detrimental to their performance.

3.5 Tolerances: Rings shall conform to the following tolerances:

3.5.1 Squareness of Periphery: The ring periphery shall be square with the sides within 0.0005 in. (0.012 mm).

3.5.2 Wall Thickness: Shall be within the limits specified on the drawing but shall not vary more than 0.004 in. (0.10 mm) throughout the circumference of any one ring.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of rings 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 4.5. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the rings conform 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 as preproduction tests and shall be performed on the first-article shipment of a ring to a purchaser, on each lot, when a change in material, processing, or both requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.2.1 For direct U.S. Military procurement, substantiating test data and, when requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring activity, the contracting officer, or the request for procurement.

4.3 Sampling: Shall be in accordance with the following; a lot shall be all rings of one size from the same melt of alloy presented for vendor's inspection at one time:

4.3.1 Composition: One ring from each lot.

4.3.2 Hardness: Not less than five rings from each lot.

4.3.3 Light-Tightness of Periphery: Not less than one ring from each lot.

4.3.4 Tolerances: Not less than one ring from each lot.

4.4 Approval:

4.4.1 Sample rings shall be approved by purchaser before rings for production use are supplied, unless such approval be waived by purchaser.

4.4.2 Vendor shall use manufacturing procedures, processes, and methods of inspection on production rings which are essentially the same as those used on the approved sample rings. If necessary to make any change in manufacturing procedures or processes, vendor shall submit for reapproval a statement of the proposed changes in operations and, when requested, sample rings. Production rings incorporating the revised operations shall not be shipped prior to receipt of reapproval.

4.5 Reports: The vendor of rings shall furnish with each shipment a report showing the results of tests to determine conformance to the technical requirements of this specification. This report shall include the purchase order number, lot number, AMS 7320D, part number, and quantity.

4.6 Resampling and Retesting: If any specimen used in the above tests fails to meet the specified requirements, disposition of the rings 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 rings represented and no additional testing shall be permitted. Results of all tests shall be reported.

5. PREPARATION FOR DELIVERY:

5.1 Identification and Packaging: