SAE Aerospace
An SAE International Group

AEROSPACE MATERIAL SPECIFICATION

SAE AMS4822F

Issued	1940-01
Noncurrent	1990-10
Reaf. Noncur.	2005-05
Cancelled	2009-01

Superseding AMS4822E

Bearings, Leaded Bronze
71.5Cu – 25Pb – 3.0Sn
Steel Back

RATIONALE

AMS4822F has been designated Cancelled based on the results of a survey to aerospace users and producers.

CANCELLATION NOTICE

This specification has been declared "CANCELLED" by the Aerospace Materials Division, SAE, as of January 2009. By this action, this document will remain listed in the Numerical Section of the Index of Aerospace Material Specifications indicating that it has been "CANCELLED".

Cancelled specifications are available from SAE.

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

SAE values your input. To provide feedback on this Technical Report, please visit
http://www.sae.org/technical/standards/AMS4822F

AN AMERICAN NATIONAL STANDARD

SAE The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 4822E

Issued 22 JAN 1940
Revised 1 APR 1991
Superseding AMS 4822D

Submitted for recognition as an American National Standard

BEARINGS, LEADED BRONZE
71.5Cu - 25Pb - 3.0Sn
Steel Back

This specification has been declared "NONCURRENT" by the Aerospace Materials Division, SAE, as of 29 October 1990. It is recommended, therefore, that this specification not be specified for new designs.

This cover sheet should be attached to the "D" 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.

REAFFIRMED

MAY '95

This specification is under the jurisdiction of AMS Committee "D".

AN AMERICAN NATIONAL STANDARD

SAE The Engineering Resource For Advancing Mobility®
400 Commonwealth Dr., Warrendale, PA 15096

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

SAE AMS 4822D

Issued 1-22-40
Revised 10-1-86

Superseding AMS 4822C

BEARINGS, LEADED BRONZE
71.5Cu - 25Pb - 3.0Sn
Steel Back

1. SCOPE:

1.1 Form: This specification covers bearings of a leaded bronze cast on one or both faces of a steel backing.

1.2 Application: Primarily for bushings and bearings.

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
AMS 2370 - Quality Assurance Sampling of Carbon and Low-Alloy Steels, Wrought Products Except Forgings and Forging Stock
AMS 2800 - Identification, Finished Parts

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 E478 - Chemical Analysis of Copper Alloys

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:

3.1.1 Bearing Metal: Shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASTM E478 or by spectrographic or other analytical methods approved by purchaser:

	min	max
Copper	68.0	75.0
Lead	23.0	27.0
Tin	2.0	4.0
Iron	--	0.35
Silver	--	0.20
Zinc	--	0.10
Nickel	--	0.01
Phosphorus	--	0.01
Total Named Elements	99.8	--

3.1.2 Backing: Shall be a low-carbon steel.

3.2 Condition: Shall be a composite material produced by casting leaded bronze onto one or both faces of a steel backing.

3.3 Properties: Bearings shall conform to the following:

3.3.1 Hardness: Steel backing shall have hardness not higher than 75 HR15N, or equivalent, determined in accordance with ASTM E18.

3.3.2 Cladding Structure: Shall be free of excessive lead segregation conforming to standards specified by purchaser, determined by a procedure agreed upon by purchaser and vendor.

3.4 Quality: Bearings, 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 bearings.

3.4.1 Cladding shall be firmly and continuously bonded to the steel backing, determined by a procedure agreed upon by purchaser and vendor.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of bearings 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 bearings 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 prior to or on the first-article shipment of a bearing to a purchaser, on each heat or lot as applicable, 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 bearings of one size and configuration made from a single heat of steel backing and a single heat of bearing metal processed in one continuous run and presented for vendor's inspection at one time:

4.3.1 Steel Backing: AMS 2370.

4.3.2 Bearing Metal: Two samples from each heat of alloy melted at the same time.

4.3.3 Bearings: Three samples from each lot.

4.4 Approval:

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

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

4.5 Reports: The vendor of bearings shall furnish with each shipment a report showing the results of tests for chemical composition of each heat and for hardness and cladding structure of each lot. This report shall include the purchase order number, lot number, AMS 4822D, 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 bearings 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 bearings represented and no additional testing shall be permitted. Results of all tests shall be reported.