

**AEROSPACE
MATERIAL
SPECIFICATION**

An American National Standard

SAE AMS 7721B

**Issued 7-1-57
Revised 10-1-86**

Superseding AMS 7721A

**LEAD ALLOY SHEET AND EXTRUSIONS
93Pb - 6.5Sb - 0.50Sn
As Fabricated**

UNS L53131

1. SCOPE:

1.1 Form This specification covers a lead alloy in the form of sheet and extrusions.

1.2 Application: Primarily for balance weights in airframe control surfaces and control columns.

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 E8 - Tension Testing of Metallic Materials

ASTM E10 - Brinell Hardness of Metallic Materials

**ASTM E87 - Chemical Analysis of Lead, Tin, Antimony, and Their Alloys
(Photometric Method)**

2.3 U. S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

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2.3.1 Military Standards:

ML-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 photometric methods in accordance with ASTM E87 or by spectrographic or other analytical methods approved by purchaser:

	min	max
Antimony	6.00	7.00
Tin	0.25	0.75
Bismuth	--	0.10
Arsenic	--	0.10
Other Impurities, total	--	0.08
Lead	remainder	

3.2 Condition: As fabricated, having an as-fabricated surface.

3.3 Properties: The product shall conform to the following requirements:

3.3.1 Density: Shall be 0.390 lb per cu in. \pm 0.003 (11.0 Mg/m³ \pm 0.08).

3.3.2 Hardness: Shall be 8 - 13 HB/10/100/30, or equivalent, determined in accordance with ASTM E10

3.3.3 Tensile Properties: Shall be as follows, determined in accordance with ASTM E8 at a rate of strain of 1/4 in. per in. (1/4 mm/mm) of gage length per minute.

Tensile Strength, min	3,000 psi	(20.5 MPa)
Elongation in 2 in. (50 mm), min	40%	

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 be as agreed upon by purchaser and vendor.

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 performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.4. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to the requirements of this specification.

4.2 Classification of Tests:

- 4.2.1 **Acceptance Tests:** Tests to determine conformance to requirements for composition (3.1), density (3.3.1), hardness (3.3.2), quality (3.4), and tolerances if specified (3.5) are classified as acceptance test and shall be performed on each heat or lot as applicable.
- 4.2.2 **Periodic Tests:** Tests to determine conformance to requirements for tensile properties (3.3.3) are classified as periodic test and shall be performed at a frequency selected by the vendor unless frequency of test is specified by purchaser.
- 4.3 **Sampling:** Shall be in accordance with the following; a lot shall be all product of the same nominal thickness or cross-section from the same heat of alloy:
- 4.3.1 **For Acceptance Tests:**
- 4.3.1.1 **Composition and Density:** One sample from each heat.
- 4.3.1.2 **Hardness, Quality, and Tolerances if Specified:** One sample from each lot.
- 4.3.2 **For Periodic Tests:** As agreed upon by purchaser and vendor.
- 4.4 **Reports:**
- 4.4.1 The vendor of the product shall furnish with each shipment a report showing the results of tests for composition and density of each heat and for hardness of each lot and stating that the product conforms to the other technical requirements of this specification. This report shall include the purchase order number, heat number, AMS 7721B, size or part number, and quantity.
- 4.4.2 The vendor of finished or semi-finished parts shall furnish with each shipment a report showing the purchase order number, AMS 7721B, contractor or other direct supplier of material, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification and shall include in the report either a statement that the material conforms or copies of laboratory reports showing the results of tests to determine conformance.
- 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 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 product represented and no additional testing shall be permitted. Results of all tests shall be reported.
5. **PREPARATION FOR DELIVERY:**
- 5.1 **Identification:** The product shall be identified as follows:

- 5.1.1 **Sheet:** Each sheet shall be marked near one end, coils being marked near the outside end, with not less than AMS 7721B, heat number, manufacturer's identification, and nominal thickness using any suitable marking fluid. As an alternate method, individual sheets 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 **Extrusions:** All extrusions shall be securely bundled and identified by a durable tag marked with not less than the purchase order number, AMS 7721B, heat number, nominal size or part number, and manufacturer's identification and attached to each bundle or shall be boxed and the box marked with the same information.
- 5.2 **Packaging:**
- 5.2.1 The product shall be packaged in such a manner as to ensure that the product, during shipment and storage, will not be permanently distorted and will be protected against damage from exposure to weather or any other normal hazard.
- 5.2.2 The product 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 product to ensure carrier acceptance and safe delivery. Packaging shall conform to carrier rules and regulations applicable to the mode of transportation.
- 5.2.3 For direct U.S. Military procurement, packaging shall be in accordance with ML-STD-794, Level A or Level C, as specified in the request for procurement. Commercial packaging as in 5.2.1 and 5.2.2 will be acceptable if it meets the requirements of Level C.
6. **ACKNOWLEDGMENT:** A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
7. **REJECTIONS:** Material not conforming to this specification or to modifications authorized by purchaser will be subject to rejection.
8. **NOTES:**
- 8.1 **Marginal Indicia:** This is a five-year editorial update and, therefore, no phi (0) symbol has been used to indicate technical changes from the previous issue of this specification.
- 8.2 **Dimensions and properties in inch/pound units are primary; dimensions and properties in SI units are shown as the approximate equivalents of the primary units and are presented only for information.**