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400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

AMS 4751A

Issued 11-1-70
Revised 7-1-88

Superseding AMS 4751

SOLDER, TIN - LEAD, EUTECTIC
63Sn - 37Pb

UNS L13630

1. SCOPE:

1.1 Form: This specification covers a tin-lead alloy in the form of bars, ingots, pellets, ribbon, and round wire.

1.2 Application: Primarily for effecting joints in electrical and electronic circuits where the reliability of the joint requires good control of the purity of the solder.

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 E46 - Chemical Analysis of Lead- and Tin-Base Solder

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, Ø determined by wet chemical methods in accordance with ASTM E46, by spectrochemical methods, or by other analytical methods acceptable to purchaser:

	min	max
Tin	62.5	63.5
Antimony	0.20	0.50
Bismuth	--	0.25
Copper	--	0.02
Arsenic	--	0.02
Iron	--	0.008
Zinc	--	0.005
Aluminum	--	0.005
Other Elements, total	--	0.08
Lead	remainder	

3.2 Melting Point: Shall be approximately 183°C (361°F).

3.3 Quality: Solder, as received by purchaser, shall be uniform in color, Ø quality, and condition, and free from foreign materials and from imperfections detrimental to its working qualities. Ribbon and wire shall be smooth, bright, and free from slivers, ragged edges, and other injurious imperfections.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the solder shall supply all Ø 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 solder conforms to the requirements of this specification.

4.2 Classification of Tests: Tests to determine conformance to all technical Ø requirements of this specification are classified as acceptance tests and shall be performed on each lot.

4.3 Sampling: Sufficient solder shall be taken at random from each lot to Ø perform all required tests. The number of determinations for each requirement shall be as specified in the applicable test procedure or, if not specified therein, not less than three.

4.3.1 A lot shall be all solder from a single melt and presented for vendor's Ø inspection at one time.

4.4 Reports:

4.4.1 The vendor of the solder shall furnish with each shipment a report showing the results of tests to determine conformance to the acceptance test requirements of the specification. This report shall include the purchase order number, lot number, AMS 4751A, form, size, and quantity.

4.4.2 Ø When assemblies requiring use of this solder are supplied, the assembly manufacturer shall inspect each lot of solder to determine conformance to the requirements of this specification and shall furnish with each shipment a report stating that the solder conforms. This report shall include the purchase order number, AMS 4751A, part or assembly number, and quantity.

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

5. PREPARATION FOR DELIVERY:

5.1 Identification and Packaging:

5.1.1 Ø Solder shall be supplied in containers of a type and size agreed upon by purchaser and vendor.

5.1.2 Each package of solder shall be permanently and legibly marked with not less than the following information:

SOLDER, TIN - LEAD, EUTECTIC
AMS 4751A
HEAT OR IDENTIFICATION NUMBER _____
MANUFACTURER'S IDENTIFICATION _____
NOMINAL SIZE _____
WEIGHT _____

5.1.3 Ø The solder 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 solder to ensure carrier acceptance and safe delivery. Packaging shall conform to carrier rules and regulations applicable to the mode of transportation.

5.1.4 Ø For direct U.S. Military procurement, packaging shall be in accordance with MIL-STD-794, Level A or Level C, as specified in the request for procurement. Commercial packaging as in 5.1.1 and 5.1.3 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.