

**AEROSPACE
MATERIAL
SPECIFICATION**

AMS 4740A
Superseding AMS 4740

Issued 9-30-66
Revised 4-1-85

COPPER POWDER
99.0 min Cu
As Fabricated

1. SCOPE:

1.1 Form: This specification covers elemental copper in the form of powder.

1.2 Application: Primarily as filler metal for brazing ferrous and high melting point nonferrous alloys.

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.

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 B214 - Sieve Analysis of Granular Metal Powders

ASTM B293 - Subsieve Analysis of Granular Metal Powders by Air Classification

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 Specifications:

MIL-C-3993 - Copper and Copper-Base Alloy Mill Products, Packaging of

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3. TECHNICAL REQUIREMENTS:

- 3.1 Composition: Shall conform to the following percentages by weight,
Ø determined by wet chemical methods in accordance with ASTM E478 or by spectrographic or other analytical methods approved by purchaser:

	min	max
Copper	99.0	--
Other Elements, total (3.1.1)	--	0.30

- 3.1.1 Silver may be counted as copper.

- 3.2 Condition: As fabricated.

- 3.3 Particle Size Distribution: Powder shall have the following particle size distribution. Sieve analysis shall be conducted in accordance with ASTM B214; subsieve (micron) analysis shall be in accordance with ASTM B293 or by an approved optical method.

Nominal Mesh Size	Through U.S. Series Sieve Number		
	100%	99% min	10% max
-40	30	40	60
-80	60	80	120
-120	80	120	200
-200	140	200	325
-325	270	325	(3.3.1)

- 3.3.1 Not more than 10% finer than a 10 micron particle size.

- 3.4 Quality: Powder, as received by purchaser, shall be uniform in color,
Ø quality, and condition and free from foreign materials and from imperfections detrimental to its brazing qualities. Powder shall have a metallic luster.

4. QUALITY ASSURANCE PROVISIONS:

- 4.1 Responsibility for Inspection: The vendor of powder shall supply all samples
Ø 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 powder 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: Shall be in accordance with the following; a lot shall be a
 Ø uniform blend of powder produced from one or more furnace charges and
 presented for vendor's inspection at one time:

4.3.1 Composition: One sample from each lot.
 Ø

4.3.2 Other Technical Requirements: As agreed upon by purchaser and vendor.
 Ø

4.4 Reports:

4.4.1 The vendor of powder shall furnish with each shipment a report showing the
 Ø results of tests on each lot to determine conformance to the composition
 requirements and stating that the product conforms to the other technical
 requirements of this specification. This report shall include the
 purchase order number, lot number, AMS 4740A, nominal size, and quantity
 from each lot.

4.4.2 When parts made of this powder or assemblies requiring use of this powder
 Ø are supplied, the part or assembly manufacturer shall inspect each lot of
 powder to determine conformance to the technical requirements of this
 specification and shall furnish with each shipment a report stating that
 the powder conforms. This report shall include the purchase order number,
 AMS 4740A, part or assembly number, and quantity.

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

5. PREPARATION FOR DELIVERY:

5.1 Packaging and Identification:

5.1.1 The powder shall be suitably wrapped, sealed, and boxed or otherwise
 Ø packaged for protection against injury and contamination during shipment
 and under normal dry storage conditions.

5.1.2 Each exterior container or package shall be permanently and legibly marked
 with not less than the following information:

COPPER POWDER

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LOT NUMBER _____

MANUFACTURER'S IDENTIFICATION _____

NOMINAL MESH SIZE _____

WEIGHT _____