SAE Aerospace
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AEROSPACE MATERIAL SPECIFICATION

SAE AMS4740 | REV. D

Issued 1966-09
Revised 2007-07
Reaffirmed 2012-09

Superseding AMS4740C

Copper Powder
99.0 Cu, Minimum
As Fabricated

RATIONALE

AMS4740D has been reaffirmed to comply with the SAE five-year review policy.

1. SCOPE

1.1 Form

This specification covers elemental copper in the form of powder.

1.2 Application

This powder has been used typically as filler metal for brazing ferrous and high melting point nonferrous alloys or in powder metallurgy applications, but usage is not limited to such applications.

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM B 214	Sieve Analysis of Granular Metal Powders
ASTM E 20	Particle Size Analysis of Particulate Substances in the Range of 0.2 to 15 µm by Optical Microscopy
ASTM E 478	Chemical Analysis of Copper Alloys

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall conform to the percentages by weight shown In Table 1, determined by wet chemical methods in accordance with ASTM E 478, by spectrochemical methods, or by other analytical methods acceptable to purchaser.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (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/AMS4740D

TABLE 1 - COMPOSITION

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

3.1.1 The balance is oxygen, present as cuprous oxide. Oxygen shall not be included in "Other Elements".

3.2 Condition

As fabricated.

3.3 Particle Size Distribution

Powder shall have the particle size distribution shown In Table 2 or Table 3; sieve analysis shall be conducted in accordance with ASTM B 214; subsieve (micron) analysis shall be in accordance with ASTM E 20 or by an optical method acceptable to purchaser.

3.3.1 For Brazing Filler Metal Applications

Shall be as shown in Table 2.

TABLE 2 - PARTICLE SIZE DISTRIBUTION

Mesh Designation	U.S. Standard Sieve Size		Distribution Percent	
100	Through	No. 60	100	
	Through	No. 100	95,	min
140C	On No.	100	0.5,	max
	On No.	140	10,	max
	Through	No. 325	20,	max
140F	On No.	100	0.5,	max
	On No.	140	10,	max
	Through	No. 325	55,	max
325	On No.	200	0.5,	max
	On No.	325	10,	max
	Through	No. 325	90,	min

3.3.1.1 When a mesh designation is not specified, 140F shall be supplied.

3.3.2 For Powder Metallurgy Applications

Shall be as shown in Table 3.

TABLE 3 - PARTICLE SIZE DISTRIBUTION

Mesh Designation	Through U.S. Series Sieve Number 100%	Through U.S. Series Sieve Number 99%, min	Through U.S. Series Sieve Number 0%, max
40	30	40	60
80	60	80	120
120	80	120	200
200	140	200	325

3.4 Quality

Powder, as received by purchaser, shall be uniform in color, 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 for vendor's tests and shall be responsible for the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the powder conforms to specified requirements.

4.2 Classification of Tests

Tests for all technical requirements are acceptance tests and shall be performed on each lot.

4.3 Sampling and Testing

Shall be in accordance with the following; a lot shall be a 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.

4.3.2 Other Technical Requirements

As agreed upon by purchaser and vendor.

4.4 Reports

The vendor of powder shall furnish with each shipment a report showing the results of tests on each lot to determine conformance to the composition requirements and stating that the product conforms to the other technical requirements. This report shall include the purchase order number, lot numbers, AMS 4740D, mesh designation, and quantity.

5. PREPARATION FOR DELIVERY

5.1 Packaging and Identification

5.1.1 The powder shall be wrapped, sealed, and boxed or otherwise 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
AMS 4740D
Lot Number(s) _____
Manufacturer's Designation _____
Mesh Designation _____
Weight _____

5.1.3 Packages of powder 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 powder to ensure carrier acceptance and safe delivery.

6. ACKNOWLEDGMENT

A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.