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400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

AMS 7879B

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Superseding AMS 7879A

TUNGSTEN CARBIDE-COBALT POWDER
Cast and Crushed

THIS REVISION CONTAINS ONLY EDITORIAL CHANGES.

1. SCOPE:

1.1 Form: This specification covers tungsten carbide-cobalt in the form of powder.

1.2 Application: Primarily for producing plasma spray coatings to provide wear and fretting resistant surfaces.

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 B214 - Sieve Analysis of Granular Metal Powders
ASTM B215 - Sampling Finished Lots of Metal Powders

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 methods agreed upon by purchaser and vendor:

	min	max
Carbon	3.90	4.30
Cobalt	10.00	12.00
Iron	--	2.00
Tungsten	remainder	

3.2 Condition: As manufactured.
Ø

3.3 Properties: Powder shall conform to the following requirements:

3.3.1 Particle Size Distribution: Powder shall be supplied with the following Ø particle size distribution. Sieve analysis shall be conducted in accordance with ASTM B214; subsieve (micron) analysis shall be conducted in accordance with a method approved by purchaser.

Mesh or Micron Size*	% By Weight min	max
-270 mesh (46 µm)	100.0	--
+325 mesh (45 µm)	--	0.5
- 20 µm	70.0	--
- 5 µm	--	10

* + indicates retained on sieve
- indicates passing through sieve

3.3.2 Plasma Spraying: Powder shall produce acceptable spray coatings; standards for acceptance and method of test shall be as agreed upon by purchaser and vendor.

3.4 Quality: Powder, as received by purchaser, shall be thoroughly blended, uniform in color and quality, dry, and free from foreign materials and from imperfections detrimental to its spraying qualities.

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 4.5. 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 as preproduction tests and shall be performed prior to or on the initial shipment of powder to a purchaser, on each lot, 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 Ø 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 ASTM B215; sufficient powder shall be Ø taken from each lot to 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 When a statistical sampling plan and acceptance quality level (AQL) have Ø been agreed upon by purchaser and vendor, sampling shall be in accordance with such plan in lieu of sampling as in 4.3 and the report of 4.5.1 shall state that such plan was used.

4.4 Approval:

4.4.1 Sample powder shall be approved by purchaser before powder for production use is supplied, unless such approval be waived by purchaser. Results of tests on production powder shall be essentially equivalent to those on the approved sample.

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

4.5 Reports:

4.5.1 Ø The vendor of powder shall furnish with each shipment a report showing the results of tests for chemical composition and the particle size distribution of each lot and stating that the powder conforms to the other technical requirements of this specification. This report shall include the purchase order number, AMS 7879A, vendor's product designation, lot number, and quantity.

4.5.2 When parts requiring use of this powder are supplied, the part manufacturer shall inspect each lot of powder to determine conformance to the technical requirements of this specification and shall furnish with each shipment of parts a statement that the powder conforms. This report shall include the purchase order number, AMS 7879A, lot number, contractor or other direct supplier of powder, part number, and quantity.

4.6 Resampling and Retesting: Ø If any sample used in the above tests fails to meet the specified requirements, disposition of the powder may be based on the results of testing three additional samples for each original nonconforming sample. Failure of any retest sample 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 Powder shall be packaged in 5 lb (2.5 kg) sealed containers to protect it from contamination during shipment and under normal dry storage conditions. Seals used on containers shall be so designed that they must be destroyed in order for the container to be opened.

5.1.2 Ø Each individual container shall be identified with not less than the following information, using characters of such size as to be legible and which will not be obliterated by normal handling:

TUNGSTEN CARBIDE-COBALT POWDER
AMS 7879A
MANUFACTURER'S IDENTIFICATION _____
PURCHASE ORDER NUMBER _____
QUANTITY _____
LOT NUMBER _____

5.1.3 Ø Containers 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. Packaging shall conform to carrier rules and regulations applicable to the mode of transportation.