SAE Aerospace
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AEROSPACE MATERIAL SPECIFICATION

SAE AMS 7882

Issued APR 2003

Tungsten Carbide-Cobalt Chrome Powder Agglomerated and Sintered

1. SCOPE:

1.1 Form:

This specification covers tungsten carbide-cobalt chrome in the form of powder.

1.2 Application:

This powder has been used typically for producing thermal spray coatings to provide wear and fretting resistant surfaces with a high level of corrosion resistance, 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 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or www.sae.org

AMS 2448	Application of Tungsten Carbine Coatings on Ultra High Strength Steels, High Velocity Oxygen/Fuel Process

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: custsvc@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or www.astm.org.

ASTM B 215 Sampling Finished Lots of Metal Powders

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall conform to the percentages by weight shown in Table 1, determined by methods acceptable to purchaser.

TABLE 1 - Composition by Weight
Percent by a Weight

Element	Minimum %	Maximum %
Cobalt	8.5	11.5
Chromium	3.0	5.0
Tungsten	Balance	
Carbon, Total	3.2	5.5
Iron	--	1.0
Others (if determined)	--	2.5

3.2 Condition:

As manufactured.

3.3 Properties:

Powder shall conform to the following requirements:

3.3.1 Particle Size Distribution: Shall be as shown in Tables 2 and 3: each lot shall show the cumulative volume percentages when measured by laser light scattering method (See 8.2).

TABLE 2 - Particle Size Distribution

Micron Size	Minimum %	Maximum %
+62	--	10
+44	18	35
+22	60	95
+11	92	--

TABLE 3 – Particle Size distribution by Sieve Size

Sieve Size	Minimum %	Maximum %
+270	-	5%
+325	-	25%

3.3.2 Thermal Spraying: Powder shall be capable of producing spray coatings to meet the requirements of AMS 2448. Purchaser and vendor shall agree upon standards for acceptance.

3.4 Quality:

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

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The vendor of powder shall provide 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 the specified requirements.

4.2 Classification of Tests:

Tests for all technical requirements are acceptance tests and 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 ingredients and/or processing requires approval by the cognizant engineering organization (see 4.4.2), and when purchaser deems confirmatory testing to be required.

4.3 Sampling and Testing:

Shall be in accordance with ASTM B 215; sufficient powder shall be 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 purchaser and vendor have agreed upon a statistical sampling plan, sampling shall be in accordance with such plan in lieu of sampling as in 4.3 and the report of 4.5 shall state such a plan was used.

4.4 Approval:

4.4.1 The process and control procedures, a preproduction sample, or both, whichever is specified, shall be approved by the cognizant engineering organization before production powder is supplied.

4.4.2 The supplier shall make no significant change in ingredients, processes, or controls from those on which the approval was based, unless the change is approved by the cognizant engineering organization. A significant change is one, which, in the judgment of the cognizant engineering organization, could affect the properties or performance of the powder.

4.5 Reports:

The vendor of a powder shall furnish with each shipment a report showing the results of tests for chemical composition and particle size distribution of each lot and stating that the powder conforms to other technical requirements. The report shall include the purchase order number, lot number, AMS 7882, vendor's product designation, and quantity.

4.6 Resampling and Retesting:

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. Results of all tests shall be reported.

5. PREPARATION FOR DELIVERY:

5.1 Packaging and Identification:

5.1.1 Powder shall be packaged in 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 Each individual container shall be legibly identified with not less than the following information, using characters that will not be obliterated by normal handling:

TUNGSTEN CARBIDE-COBALT CHROME POWDER
AMS 7882
MANUFACTURER'S IDENTIFICATION _____
PURCHASE ORDER NUMBER _____
QUANTITY _____
LOT NUMBER _____

5.1.3 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 handling and safe delivery.

6. ACKNOWLEDGMENT:

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