SAE Aerospace
An SAE International Group

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 7880C

Issued	NOV 1970
Revised	APR 1987
Noncurrent	MAR 1994
Reaffirmed	SEP 2002
Cancelled	MAR 2007

Superseding AMS 7880B

Tungsten Carbide-Cobalt Powder Sintered and Crushed

RATIONALE

AMS 7880B has been designated Cancelled because survery of aerospace users and producers determined this product is not produced to this specification.

CANCELLATION NOTICE

This specification has been declared “CANCELLED” by the Aerospace Materials Division, SAE, as of March, 2007. By this action, this document will remain listed in the Numerical Section of the Index of Aerospace Material Specifications indicating that it has been “CANCELLED”.

Cancelled specifications are available from SAE.

Similar but not necessarily identical product is covered in the following specification. However, this is provided for information only and does not constitute authority to substitute this specification for the “CANCELLED” specification.

AMS 7881 Tungsten Carbide-Cobalt Powder Agglomerated and Sintered

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

NONCURRENT NOTICE

This specification has been declared “NONCURRENT” by the Aerospace Materials Division, SAE, as of September 2002. It is recommended, therefore, that this specification not be used for new designs.

“NONCURRENT” refers to those materials or processes which have previously been widely used and may be required on some existing designs in the future. The Aerospace Materials Division, however, does not recommend these as standard materials or processes for future use in new designs.

“NONCURRENT” specifications are available from SAE upon request.

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 ASTM, 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, determined by methods agreed upon by purchaser and vendor:

	min	max
Free Carbon (3.1.1)	--	0.10
Total Carbon	5.15	--
Cobalt	11.00	13.00
Iron	--	1.50
Other Impurities, each (3.1.1)	--	1.00
Tungsten	81.00	--

3.1.1 Determination not required for routine acceptance.

3.2 Condition:

As manufactured.

3.3 Properties:

Powder shall conform to the following requirements:

3.3.1 Particle Size Distribution: Powder shall be supplied with the following particle size distribution. Sieve analysis shall be conducted in accordance with ASTM B214.

Mesh Size	% By Weight, Min
-200 mesh (75 µm)	99.5
-325 mesh (45 µm)	95.0

- indicates passing through sieve

3.3.2 Metallographic Inspection: Tungsten carbide particles in the cobalt matrix shall not exceed 20 microns and shall be predominantly 2 to 5 microns.

3.3.3 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 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 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 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 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 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.