Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 7725A
Superseding AMS 7725

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TUNGSTEN ALLOY, SINTERED, HIGH DENSITY

1. SCOPE:

1.1 Form: This specification covers a tungsten alloy in the form of sintered shapes.

1.2 Application: Primarily for parts, such as counterbalance weights, requiring maximum weight per unit volume.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from Society of Automotive Engineers, Inc., 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 B311 - Density of Cemented Carbides
ASTM E8 - Tension Testing of Metallic Materials
ASTM E18 - Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials

2.3 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 be a metallic alloy containing principally tungsten and other alloying elements in such proportions as to meet the property requirements of 3.3.

3.2 Condition: As sintered.

3.3 Properties: The product shall conform to the following requirements:

3.3.1 Tensile Properties: Specimens cut from shapes having section thickness 2 in. (51 mm) and ø under shall conform to the following requirements, determined in accordance with ASTM E8:

Tensile Strength, min	80,000 psi (552 MPa)
Yield Strength at 0.2% Offset, min	70,000 psi (483 MPa)
Elongation in 4D, min	1%

3.3.1.1 Tensile properties for specimens cut from shapes having section thickness over 2 in. (51 mm) shall be as agreed upon by purchaser and vendor.

Printed in U.S.A.

3.3.2 Hardness : Shall be 20 - 30 HRC, determined in accordance with ASTM E18.

3.3.3 Density : Shall be 16.7 - 17.2 g/cm^3, determined in accordance with ASTM B311, except that shapes of large section or weighing more than 2500 g may have density as low as 16.5 g per cubic centimeter.

3.3.4 Microstructure : Shall be uniform and homogeneous, examined at 200X magnification.

3.5 Quality : Shapes shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external imperfections detrimental to fabrication or to performance of parts.

4. QUALITY ASSURANCE PROVISIONS :

4.1 Responsibility for Inspection : The vendor of shapes shall supply all samples 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 perform such confirmatory testing as he deems necessary to ensure that the shapes conform to the requirements of this specification.

4.2 Classification of Tests :

4.2.1 Acceptance Tests : Tests to determine conformance to hardness (3.3.2), density (3.3.3), and microstructure (3.3.4) requirements are classified as acceptance or routine control tests.

4.2.2 Qualification Tests : Tests to determine conformance to tensile property (3.3.1) requirements are classified as qualification or periodic control tests.

4.2.2.1 For direct U.S. Military procurement, qualification test material and supporting test data shall be submitted to the cognizant qualification agency as directed by the request for procurement, the procuring activity, or the contracting officer.

4.3 Sampling : Shall be in accordance with the following; a lot shall be all sintered shapes formed from one blend of powder:

4.3.1 Acceptance Tests : One specimen from each lot for determination of hardness, density, and microstructure.

4.3.2 Qualification Tests : Three tensile test specimens, when requested.

4.4 Approval :

4.4.1 To assure uniformity of quality, sample sintered shapes from new or reworked master patterns shall be approved by purchaser before shapes for production use are supplied, unless such approval be waived.

4.4.2 Vendor shall use ingredients, processing techniques, and methods of routine inspection on production sintered shapes which are essentially the same as those used on the approved sample shapes. If necessary to make any change in ingredients, processing techniques, or methods of routine inspection, the vendor shall submit for reapproval a statement of the proposed changes in material and processing and when requested, sample shapes. No production shapes made by the revised procedure shall be shipped prior to receipt of reapproval.

4.5 Reports :