AEROSPACE
MATERIAL SPECIFICATIONS
SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

AMS 7730

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Revised

DEPLETED URANIUM CASTINGS

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

2. APPLICATION: Primarily for use as cast aircraft counterweights where it is desirable to produce compound contours without machining and where space limitations require the use of a high-density material. Applications in oxidizing atmospheres necessitate a protective coating.

3. COMPOSITION:

	min	max
Uranium	99.00	--
Carbon	--	0.07

4. CONDITION: As cast and cadmium plated.

5. TECHNICAL REQUIREMENTS:

5.1 Casting: Melting and casting shall be carried on in vacuum, or under inert atmosphere when permitted. Mold materials shall be limited to graphite or insoluble refractories unless special casting techniques can eliminate contamination with foreign materials. Extreme care shall be exercised to avoid contact of the molten metal with more soluble refractories, such as those containing silica.

5.2 Test Specimens:

5.2.1 Tensile Test Specimens: Unless otherwise specified, tensile test specimens shall be cast to represent each heat of metal in castings. The specimens shall be of standard proportions with 0.25 in. diameter at the reduced parallel section, shall be cast to size in molds made of the same mold material and heated to the same temperature as the molds for casting, and shall be cooled at approximately the same rate as the castings.

5.3 Tensile Properties: Tensile test specimens produced in accordance with 5.2.1 shall conform to the following requirements. Specimens cut from castings are not required for routine examination; however, properties obtained from such specimens may be basis for acceptance or rejection of castings. Specific location and size of specimens shall be as agreed upon by purchaser and vendor.

Tensile Strength, psi	70,000 min
Yield Strength at 0.2% Offset or at 0.0035 in. in 1 in. Extension Under Load (E = 24,000,000), psi	35,000 min
Elongation, % in 1 in. or 4D	6 min
Reduction of Area, %	24 min

5.3.1 Statistical Sampling: Mechanical property test results may be waived by the purchaser, upon vendor's demonstration of a statistical sampling plan which substantiates that the mechanical properties requirements of 5.3 will be met.

5.4 Plating: Shall be applied to all surfaces and shall consist of a copper flash on the basis metal (finished machined casting) followed by a uniform nickel flash with a final cadmium plate not less than 0.005 in. thick on all exterior surfaces.

5.5 Density: Shall be not lower than 18.82 g per cu cm (0.673 lb per cu in.) unless otherwise specified.

5.6 Radiation Emission: The radiation emission of the casting, at the surface of the casting, shall not exceed 240 MR per hr, beta plus gamma. After cadmium plating, the radiation shall not exceed 150 MR per hour.

6. QUALITY:

6.1 Castings:

6.1.1 Castings shall be uniform in quality and condition, sound, and free from foreign materials and from internal and external imperfections detrimental to fabrication or to performance of parts. Castings shall have smooth surfaces and shall be well cleaned.

6.1.2 Unless otherwise specified, repair of minor imperfections by inert gas shielded fusion welding is permitted; the repaired imperfection shall be not detrimental to fabrication or to performance of parts and shall be free from cracks, porosity, and other harmful imperfections as determined by penetrant inspection in accordance with the latest issue of AMS 2645 or AMS 2646.

6.1.3 Surface imperfections may be removed with suitable grinders or other tools; however, this blending of imperfections shall not result in dimensions outside the drawing limits.

6.2 Plating: Shall be smooth, fine-grained, adherent to all surfaces of the finished part, and free from cracks, blisters, pits, nodules, and other defects.