SAE Aerospace
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AEROSPACE MATERIAL SPECIFICATION

AMS 4438E

Issued	JAN 1961
Revised	APR 1984
Noncurrent	JUL 1991
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Cancelled	JUN 2006
Superseding	AMS 4438D

Magnesium Alloy Castings, Sand
5.7Zn - 1.8Th (ZH62A-T5)
Precipitation Heat Treated

UNS M16620

CANCELLATION NOTICE

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1. SCOPE:

1.1 Form:

This specification covers a magnesium alloy in the form of sand castings.

1.2 Application:

Primarily for parts requiring a combination of high yield strength and good elongation.

1.3 Precautions:

Castings covered by this specification are radioactive. All applicable rules and regulations, including those of the Nuclear Regulatory Agency, pertaining to handling of radioactive material and all licensing provisions for use of such material should be observed.

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 SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350	Standards and Test Methods
AMS 2360	Room Temperature Tensile Properties of Castings
AMS 2475	Protective Treatment, Magnesium Alloys
AMS 2635	Radiographic Inspection
AMS 2645	Fluorescent Penetrant Inspection
AMS 2646	Contrast Dye Penetrant Inspection
AMS 2694	Repair Welding of Aerospace Castings
AMS 2804	Identification, Castings

2.2 ASTM Publications:

Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM B557	Tension Testing Wrought and Cast Aluminum- and Magnesium-Alloy Products
ASTM E10	Brinell Hardness of Metallic Materials
ASTM E35	Chemical Analysis of Magnesium and Magnesium Alloys
ASTM E155	Reference Radiographs for Inspection of Aluminum and Magnesium Castings

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2.3 U.S. Government Publications:

Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Federal Standards:

Federal Test Method Standard No. 151 Metals; Test Methods

2.3.2 Military Specifications:

MIL-M-6857 Magnesium Alloy Castings, Heat Treatment of

2.3.3 Military Standards:

MIL-STD-649 Aluminum and Magnesium Products, Preparation for Shipment and Storage

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASTM E35, by spectrochemical methods in accordance with Federal Test Method Standard No. 151, Method 112, or by other analytical methods acceptable by purchaser:

	min	max
Zinc	5.2	6.2
Thorium	1.4	2.2
Zirconium, total	0.50	1.0
Zirconium, soluble (3.1.1)	0.50	- -
Copper (3.1.2)	- -	0.10
Nickel (3.1.2)	- -	0.01
Other Impurities, each (3.1.2)	- -	0.10
Other Impurities, total	- -	0.30
Magnesium	remainder	

3.1.1 Soluble zirconium is that portion of the zirconium which is soluble in 1:4 hydrochloric acid held below its boiling point.

3.1.2 Determination not required for routine acceptance.

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