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AEROSPACE MATERIAL SPECIFICATION

SAE AMS-I-7068 | REV. B

Issued 1999-04
Cancelled 2007-09
Revised 2011-10

Superseding AMS-I-7068A

Ingot, Zinc Alloy
(For Sheet Metal Forming Dies)

FSC 9650

RATIONALE

AMS-I-7068B restores the document to active status for the purpose of correcting the designation of equivalent materials. AMS-I-7068A cancelled this document. The Aerospace Materials Division of SAE continues to recommend that this specification not be specified for new designs and intends to issue AMS-I-7068C to return this document to cancelled status as soon as possible.

Equivalent products are covered in ASTM B 793.

AMS-I-7068 Composition	UNS Designation	Similar Designation per ASTM B 793, Zinc Casting Alloy Ingot for Sheet Metal Forming Dies and Plastic Injection Molds
Composition A	UNS Z35543	Alloy A, Kirksite A
Composition B	UNS Z35542	Alloy B, Kirksite B
Not Specified	UNS Z35543	Alloy A, Kirksite A

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NOTICE

The initial SAE publication of this document was taken directly from U.S. Military Standard MIL-I-7068A. This SAE Standard may retain the same part numbers established by the original military document. Any requirements associated with Qualified Products Lists (QPL) may continue to be mandatory for DoD contracts. Requirements relating to QPLs have not been adopted by the SAE for this standard and are not part of this SAE document.

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http://www.sae.org/technical/standards/AMSI7068B

1. SCOPE

1.1 Scope

This specification addresses requirements for a zinc alloy used in the production of sand cast forming dies for sheet metal stamping operations.

1.2 Composition

Ingots shall be furnished in one of the following compositions (See 6.3):

Composition A (UNS Z35543)
Composition B (UNS Z35542)

1.2.1 Unless otherwise specified (See 6.2.1), ingot shall be composition A.

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 U.S. Government Publications

Available from the Document Automation and Production Service (DAPS), Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6257, http://assist.daps.dla.mil/quicksearch/.

MIL-STD-129 Military Marking for Shipment and Storage

MIL-STD-961 Defense and Program-Unique Specifications Format and Content

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM D 3951 Commercial Packaging

ASTM E 536 Chemical Analysis of Zinc and Zinc Alloys

3. REQUIREMENTS

3.1 Chemical Composition

Material shall conform to the chemical composition detailed in Table 1.

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TABLE 1 - CHEMICAL COMPOSITION

Element	Composition A (percent)	Composition B (percent)
Copper	2.5 - 3.5	2.5 - 2.9
Aluminum	3.5 - 4.5	3.9 - 4.3
Magnesium	0.02 - 0.010	0.02 - 0.05
Iron	0.10 max	0.075 max
Lead	0.007 max	0.003 max
Cadmium	0.005 max	0.003 max
Tin	0.0005 max	0.001 max
Zinc	Remainder	Remainder

3.2 Material Quality

Ingots shall be in standard commercial shapes and sizes, and shall be free from dross, slag, and foreign material.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for Compliance

All items must meet all requirements of Sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.2 Sampling

4.2.1 Lot

A lot shall consist of all ingots poured from the same heat of the same composition submitted for inspection at one time.

4.2.2 Sampling for Chemical Analysis

4.2.2.1 Ingot Analysis

At least one ingot shall be tested from each lot and analyzed to determine conformance with 3.1. Two samples shall be obtained from the ingot by drilling through the ingot at one end and at the center. The drill bit shall be clean and shall not be lubricated during the drilling operation. Ingots not conforming to the requirements of 3.1 shall be rejected. Complete ingot analysis shall be maintained at the producers facility and shall be available to the procuring activity for review upon request.

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4.2.2.2 Ingot Identities Indeterminable

When ingot identities of an inspection lot cannot be determined, a specimen shall be taken from each ingot which is unidentified in accordance with 4.2.2.1.

4.2.3 Sampling for Visual Examination

Each ingot shall be examined to determine conformance to this specification with respect to markings.

4.3 Examination

4.3.1 Visual Examination

Each sample selected in accordance with 4.2.4 shall be examined visually to verify conformance to this specification.

4.3.2 Preservation, Packing and Marking for Shipment

The preservation, packing and marking for shipment shall be examined to determine compliance with the requirements of Section 5.

4.4 Test Procedures

4.4.1 Chemical Analysis

Chemical analysis shall be made by ASTM E 356, spectrochemical methods or other analytical method approved by the contracting activity.

5. PACKAGING

5.1 Preservation, Packing and Marking

Preservation and packing shall be in accordance with ASTM D 3951, as specified (See 6.2). The levels of preservation and packing shall be as specified (See 6.2).

5.2 Marking

In addition to any special or other identification marking required by the contract (See 6.2), each ingot shall be marked in accordance with MIL-STD-129.

5.3 Packaging Inspection

All packaging requirements shall be inspected in accordance with 4.3.2 to ensure compliance.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended Use

This alloy is intended for use in fabricating forming dies for sheet metal stamping under drop hammers and hydro presses. Composition B is a special purpose alloy of closer controlled chemistry.

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