Designation: B952/B952M – 14

Standard Specification for Zinc Alloys in Ingot Form for Spin Casting[1]

This standard is issued under the fixed designation B952/B952M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This specification covers zinc alloys in ingot form for remelting for the manufacture of Spin Castings as specified and designated, as shown in Table 1. Seven alloy compositions are specified, designated as follows:

Common	Traditional	UNS
Spin Casting Alloy SC-A	...	Z35550
Spin Casting Alloy SC-B	...	Z35551
Spin Casting Alloy SC-C	...	Z35534
Spin Casting Alloy SC-D	HJ10	Z35547
Spin Casting Alloy SC-E	HJ20	Z35548
Spin Casting Alloy SC-F	HJ40	Z35552
ZA-73	...	Z36500

1.2 Zinc alloys #2, #3, #5, and ZA-8 specified in Specification B240 are also used in the spin casting process.

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to become familiar with all hazards including those identified in the appropriate Material Safety Data Sheet (MSDS) for this product/material as provided by the manufacturer, to establish appropriate safety and health practices, and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 The following documents of the issue in effect on date of order acceptance form a part of this specification to the extent referenced herein:

2.2 *ASTM Standards:*[2]

B240 Specification for Zinc and Zinc-Aluminum (ZA) Alloys in Ingot Form for Foundry and Die Castings

B899 Terminology Relating to Non-ferrous Metals and Alloys

B908 Practice for the Use of Color Codes for Zinc Casting Alloy Ingot

B949 Specification for General Requirements for Zinc and Zinc Alloy Products

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E88 Practice for Sampling Nonferrous Metals and Alloys in Cast Form for Determination of Chemical Composition

E536 Test Methods for Chemical Analysis of Zinc and Zinc Alloys

E634 Practice for Sampling of Zinc and Zinc Alloys by Spark Atomic Emission Spectrometry

2.3 *ISO Standards:*[3]

ISO 3815-1 Zinc and zinc alloys—Part 1: Analysis of solid samples by optical emission spectrometry

ISO 3815-2 Zinc and zinc alloys—Part 2: Analysis by inductively coupled plasma optical emission

3. Terminology

3.1 Terms shall be defined in accordance with Terminology B899.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *spin casting, n*—a casting process in which molten metal is poured into a rubber, polymer, graphite or metal mold and spun centrifugally until solidified, also a product produced by such a process.

4. Ordering Information

4.1 Orders for zinc alloy ingot under this specification shall include information as specified in Specification B949, Section 4.

[1] This specification is under the jurisdiction of ASTM Committee B02 on Nonferrous Metals and Alloys and is the direct responsibility of Subcommittee B02.04 on Zinc and Cadmium.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

***A Summary of Changes section appears at the end of this standard**

TABLE 1 Chemical and North American Color Code Requirements

	Alloy SC-A	Alloy SC-B	Alloy SC-C	ZA-73[C]	Alloy SC-D	Alloy SC-E	Alloy SC-F
UNS	Z35550	Z35551	Z35534	Z56500	Z35547	Z35548	Z35552
Color Code[A]	Green/Black	Green/Purple	Green/Yellow	Blue/Orange	Green/Blue	Green/Red	Green/Orange
Element[B]							
Aluminum	3.9–4.3	3.9–4.3	3.4–4.6	7.7–8.0	3.2–3.8	3.2-3.8	3.25-3.75
Magnesium	0.1–0.2	0.4–0.6	0.4–0.43	0.02–0.03	0.15-0.30	0.45-0.75	0.45-0.75
Copper	2.6–2.9	2.7–3.3	1.3–1.4	3.0–3.3	1.2-1.8	2.5-3.25	4.25-4.75
Iron, max	0.035	0.035	0.10	0.075	0.035	0.075	0.035
Lead, max	0.004	0.004	0.015	0.005	0.004	0.005	0.004
Cadmium, max	0.0030	0.0030	0.005	0.003	0.003	0.003	0.003
Tin, max	0.0015	0.0015	0.005	0.002	0.002	0.003	0.002
Nickel, max	...	...	0.02	...	. . .	0.02	. . .
Zinc	Remainder	Remainder	Remainder	Remainder	Remainder	Remainder	Remainder

[A] Per Practice B908.
[B] For purposes of acceptance and rejection, the observed value or calculated value obtained from analysis should be rounded to the nearest unit in the last right-hand place of figures, used in expressing the specific limit in accordance with the rounding procedure prescribed in Practice E29.
[C] ZA-73 is also often used as a pressure die casting alloy.

5. Materials and Manufacture

5.1 The alloys may be made by any approved process.

5.2 The material covered by this specification shall be of uniform quality and shall be free from dross or other harmful contamination.

6. Chemical Requirements

6.1 *Limits*—The alloy shall conform to the requirements as to chemical composition prescribed in Table 1.

6.2 Chemical requirement procedures shall be in compliance with the provisions of Specification B949, Section 5.2.

6.3 *Methods of Sampling*—Sampling procedures shall be in compliance with the provisions of Specification B949, Section 6.

6.4 *Method of Analysis*—Approved methods include: Test Methods E536, ISO 3815-1, or ISO 3815-2.

NOTE 1—Test Methods E536 is directly applicable in an unmodified form, only to alloys 3, 5, and 7. ISO 3815-1 and ISO 3815-2 are generic methods applied to zinc and zinc alloys. Each of the methods may be modified and formatted for the alloy to be assayed. An experienced chemist, using suitable and/or traceable standards along with valid quality assurance techniques, will be able to perform and validate the methods and demonstrate acceptable precision and accuracy.

7. Source Inspection

7.1 Source inspection shall be in compliance with the provisions of Specification B949, Section 7.

8. Rejection and Rehearing

8.1 Claims to be considered in accordance with the provisions of Specification B949, Section 8.

9. Investigation of Claims

9.1 Claims shall be investigated in accordance with the provisions of Specification B949, Section 8.

10. Settlement of Claims

10.1 Claims shall be settled in accordance with the provisions of Specification B949, Section 8.

11. Product Identification Marking and Packaging

11.1 Each slab, block, jumbo or ingot shall be marked for identification in accordance with the provisions of Specification B949, Section 10.

12. Preparation for Delivery

12.1 *Packaging*—Unless otherwise specified, the ingot shall be packaged to provide adequate protection during normal handling and transportation. Each package shall contain only one alloy unless otherwise agreed upon.

13. Keywords

13.1 casting; casting alloys; centrifugical casting; prototyping; rubber mold; SC-A; SC-B; SC-C; silicon mold; spin casting; ZA alloys; Zamak; ZA-73; zinc; zinc-aluminum alloys

SUMMARY OF CHANGES

Committee B02 has identified the location of selected changes to this standard since the last issue (B952/B952M–13) that may impact the use of this standard. (Approved October 1, 2014.)

(1) Added color codes to Table 1.
(2) Added footnote C for ZA-73 in Table 1.
(3) Corrected magnesium range for Alloy SC-F.