Designation: B960 – 13

Standard Specification for Prime Western Grade-Recycled (PWG-R) Zinc[1]

This standard is issued under the fixed designation B960; 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 prime western grade-recycled (PWG-R) zinc made by recycling zinc secondary materials including but not limited to drosses and skimmings.

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3 *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 the date of material purchase form a part of this specification to the extent referenced herein.

2.2 *ASTM Standards:*[2]

B6 Specification for Zinc

B897 Specification for Configuration of Zinc and Zinc Alloy Jumbo Block and Half Block Ingot

B899 Terminology Relating to Non-ferrous Metals and Alloys

B914 Practice for Color Codes on Zinc and Zinc Alloy Ingot for Use in Hot-Dip Galvanizing of Steel

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

E527 Practice for Numbering Metals and Alloys in the Unified Numbering System (UNS)

E536 Test Methods for Chemical Analysis of Zinc and Zinc Alloys

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 spectrometry

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 *Prime Western Grade-Recycled, n*—a grade of zinc containing 0.5 to 1.4 % lead, a minimum or 98.5 % zinc, with controlled impurity levels as specified in Table 1 made by recycling zinc secondary materials.

3.3 *Abbreviations:*

3.3.1 *PWG-R*—Prime Western Grade-Recycled Zinc

4. Ordering Information

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

5. Materials and Manufacture

5.1 The manufacturer shall use care to have each lot of zinc metal be as uniform in quality as possible.

6. Chemical Composition

6.1 The zinc metal shall conform to the requirements prescribed in Table 1.

7. Sizes and Shapes

7.1 Slabs varying in weight from 40 to 60 pounds (18 to 27 kg) are all considered standard slabs.

[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 Requirements

NOTE 1—The following applies to all specified limits in this table: For purposes of determining conformance with this specification, an observed value obtained from analysis shall be rounded off "to the nearest unit" in the last right-hand place of figures used in expressing the limiting value, in accordance with the rounding method of Practice E29.

		Composition, %[A]						
Grade (UNS) [B]	Color Code [C]	Lead	Iron max	Cadmimum max	Aluminum max	Copper max	Total Non-Zinc max [D]	Zinc, min. by difference
Prime Western Grade-Recycled, (PWG-R) (Z18005)	Black	0.5–1.4	0.05	0.20	0.01	0.10	1.5	98.5

[A] This composition will remain the same as specified in B6 for Prime Western Grade.
[B] UNS designations were established in accordance with Practice E527.
[C] Refer to Practice B914.
[D] PWG-R may contain small amounts of Bi, Ni, and Sn which could affect the galvanizing process or product. The maximum limits for these elements may be agreed upon by written agreement between the producer and consumer.

7.2 PWG-R Zinc metal may be ordered in jumbos or blocks as specified in Specification B897.

7.3 Other shapes and sizes as may be agreed upon between the producer and the customer if they are cast to the chemical composition requirements prescribed in Table 1.

8. Appearance

8.1 The PWG-R Zinc metal shall be reasonably free of surface corrosion and adhering foreign material.

9. Sampling for Chemical Analysis

9.1 Sampling procedures shall be in compliance with the provisions of Specification B949, Section 6.

10. Methods of Chemical Analysis

10.1 The chemical compositions enumerated in this specification shall, in case of disagreement, be determined by the methods mutually agreed upon and approved for referee purposes by 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.

11. Rejection and Rehearing

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

12. Investigation of Claims

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

13. Settlement of Claims

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

14. Product Identification Marking and Packaging

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

15. Keywords

15.1 prime western grade-recycled zinc; prime western zinc; PWG-R; recycled zinc; secondary zinc; zinc; zinc metal

SUMMARY OF CHANGES

Committee B02 has identified the location of selected changes to this standard since the last issue (B960 – 12) that may impact the use of this standard. (Approved February 1, 2013.)

(1) UNS numbers were added.

Committee B02 has identified the location of selected changes to this standard since the last issue (B960 – 08) that may impact the use of this standard. (Approved May 1, 2012.)

(1) Revisions have been made to Sections 2, 4, 9, 11, 12, 13 and 14 to reference Specification B949 and delete certain portions of these sections formerly a part of this standard.

(2) The titles of Sections 4 and 14 have been revised to be in agreement with a standard format for Subcommittee B02.04 standards.