Designation: B 418 – 95a (Reapproved 2000)ε1

An American National Standard

Standard Specification for Cast and Wrought Galvanic Zinc Anodes[1]

This standard is issued under the fixed designation B 418; 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.

This standard has been approved for use by agencies of the Department of Defense.

ε[1] NOTE—The caveat in section 1.4 and Termionology section 3.1 were added editorially in December 2000.

1. Scope

1.1 This specification covers cast and wrought galvanic zinc anodes for the cathodic protection of more noble metals and alloys in sea water, brackish water, or other saline electrolytes. Type I anodes are most commonly used for such applications. The Type I anode composition in this specification meets the chemical composition requirements of MIL-A-18001J.

1.2 Zinc anodes conforming to this specification may be used in other waters, electrolytes, backfills, and soils where experience has shown that the specified composition is efficient and reliable. Type II anodes are most commonly used for such applications.

1.3 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

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 Data Sheet 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 *ASTM Standards:*

B 6 Specification for Zinc[2]

B 899 Terminology Relating to Non-ferrous Metals and Alloys[2]

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance With Specifications[3]

E 527 Practice for Numbering Metals and Alloys (UNS)[4]

E 536 Test Method for Chemical Analysis of Zinc and Zinc Alloys[5]

2.2 *Military Standard:*

MIL-A-18001J Military Specification Anodes, Corrosion Preventative, Zinc, Slab Disc, and Rod Shaped[6]

3. Terminology

3.1 Terms shall be defined in accordance with Terminology B 899.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *cathodic protection*—reduction of corrosion by making the protected metal the cathode in a conducting medium by applying direct current.

3.2.2 *galvanic anode*—a metal electrode that sacrificially corrodes when coupled to a more noble metal in a conducting medium, and thereby supplies a protective electric current to the noble electrode.

3.2.3 *saline electrolyte*—a solution consisting of mainly the chlorides of the alkali metals.

4. Ordering Information

4.1 Orders for anodes under this specification shall include the following information:

4.1.1 ASTM designation and year of issue,

4.1.2 Type of anode material (see Table 1),

4.1.3 Quantity in pounds,

4.1.4 Number of anodes,

4.1.5 Size of anode and whether contains rod insert and if so, type of insert and whether contains bolt hole and if so, whether threaded.

4.1.6 Whether marking for identification is required including the marking patterns, if required, and

4.1.7 Whether certification is required.

5. Chemical Composition

5.1 The anode shall be made from Special High Grade zinc conforming to Specification B 6, with suitable alloying additions for Type I anodes. Composition of the anode alloy content shall conform to the limits prescribed in Table 1.

5.2 Evidence from laboratory tests shows that Type I composition may suffer intergranular corrosion. Susceptibility

[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.

Current edition approved Oct. 10, 1995. Published December 1995. Originally published as B 418 – 64 T. Last previous edition B 418 – 95.

[2] *Annual Book of ASTM Standards*, Vol 02.04.

[3] *Annual Book of ASTM Standards*, Vol 14.02.

[4] *Annual Book of ASTM Standards*, Vol 01.01.

[5] *Annual Book of ASTM Standards*, Vol 03.06.

[6] Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.