



Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel¹

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

1. Scope

1.1 This specification covers material and process requirements for electrodeposited zinc coatings applied to iron or steel articles to protect them from corrosion.

1.2 The coatings are provided in four standard thickness classes (4.1), in the as-plated condition or with one of five types of supplementary finishes (4.2).

1.3 High strength metals, unless otherwise specified, including high strength steels having a tensile strength greater than 1700 MPa (247 ksi, 46HRC) shall not be electroplated.

1.4 It does not cover continuous processes for electrodeposited zinc coated steel wire or sheets (see Specification A591/A591M for sheets.)

1.5 It may be used for fasteners but specific specifications have been developed for manufacturing fasteners in Committee F16 which may be more applicable (see Specifications F1941 and F1941M.

1.6 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.7 *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 establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

1.8 *This standard has been revised to address RoHS requirements that seek to limit the exposure of workers and the public from exposure to toxic metals. Additional types V and VI have been added to permit non-chromate passivate treatments to be used in replacement of hexavalent chromium.*

2. Referenced Documents

2.1 ASTM Standards:²

- A591/A591M Specification for Steel Sheet, Electrolytic Zinc-Coated, for Light Coating Weight [Mass] Applications (Withdrawn 2005)³
- B117 Practice for Operating Salt Spray (Fog) Apparatus
- B183 Practice for Preparation of Low-Carbon Steel for Electroplating
- B201 Practice for Testing Chromate Coatings on Zinc and Cadmium Surfaces
- B242 Guide for Preparation of High-Carbon Steel for Electroplating
- B254 Practice for Preparation of and Electroplating on Stainless Steel
- B320 Practice for Preparation of Iron Castings for Electroplating
- B322 Guide for Cleaning Metals Prior to Electroplating
- B374 Terminology Relating to Electroplating
- B487 Test Method for Measurement of Metal and Oxide Coating Thickness by Microscopical Examination of Cross Section
- B499 Test Method for Measurement of Coating Thicknesses by the Magnetic Method: Nonmagnetic Coatings on Magnetic Basis Metals
- B504 Test Method for Measurement of Thickness of Metallic Coatings by the Coulometric Method
- B567 Test Method for Measurement of Coating Thickness by the Beta Backscatter Method
- B568 Test Method for Measurement of Coating Thickness by X-Ray Spectrometry
- B571 Practice for Qualitative Adhesion Testing of Metallic Coatings

¹ This specification is under the jurisdiction of ASTM Committee B08 on Metallic and Inorganic Coatings and is the direct responsibility of Subcommittee B08.06 on Soft Metals.

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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 The last approved version of this historical standard is referenced on www.astm.org.