



Standard Specification for Coatings of Cadmium-Zinc Mechanically Deposited¹

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1. Scope

1.1 *General*—This specification covers the requirements for a coating that is a mixture of cadmium and zinc deposited on metallic products by mechanical deposition. The coating is provided in four thickness classes (see Table 1) and several finish types (see Table 2).

1.2 *Toxicity*—**Warning:** Cadmium is toxic; therefore these coatings should not be used on articles that will contact food or beverages, or for dental and other equipment that may be inserted into the mouth. Also, the coatings should not be used on articles that will be heated to high temperatures, because cadmium will form toxic fumes. Similarly, if coated articles are welded, soldered, or otherwise heated during fabrication, adequate ventilation should be provided to exhaust toxic fumes.

1.3 *Similar Documents*—Other kinds of mechanically deposited coatings are covered by Specifications B 635, B 695, and B 696.

1.4 The following precautionary caveat pertains only to the test method portion, Section 9, of this specification. *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.*

2. Referenced Documents

2.1 ASTM Standards:

B 117 Practice for Operating Salt Spray (Fog) Apparatus²

B 183 Practice for Preparation of Low-Carbon Steel for Electroplating³

B 242 Practice for Preparation of High-Carbon Steel for Electroplating³

B 320 Practice for Preparation of Iron Castings for Electroplating³

B 322 Practice for Cleaning Metals Prior to Electroplating³

B 374 Terminology Relating to Electroplating³

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² Annual Book of ASTM Standards, Vol 03.02.

³ Annual Book of ASTM Standards, Vol 02.05.

TABLE 1 Thickness Classes

Class	Coating Thickness Minimum, μm	Typical Applications
7	7	Automotive fasteners
12	12	Increased corrosion resistance (for example, bellville washers)
25	25	Exterior hardware
50	50	Pole line hardware in severe environments

B 487 Test Method for Measurement of Metal and Oxide Coating Thicknesses by Microscopical Examination of a Cross Section³

B 499 Test Method for Measurement of Coating Thicknesses by the Magnetic Method: Nonmagnetic Coatings on Magnetic Basis Metals³

B 571 Test Methods for Adhesion of Metallic Coatings³

B 602 Test Method for Attribute Sampling of Metallic and Inorganic Coatings³

B 635 Specification for Coatings of Cadmium-Tin Mechanically Deposited on Iron and Steel³

B 695 Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel³

B 696 Specification for Coatings of Cadmium Mechanically Deposited³

B 697 Guide for Selection of Sampling Plans for Inspection of Electrodeposited Metallic and Inorganic Coatings³

B 762 Method of Variables Sampling of Metallic and Inorganic Coatings³

TABLE 2 Coating Types

Type	Description	Typical Applications
I	As-coated, without supplementary treatments.	Lowest cost where white corrosion products are acceptable. For elevated temperature application that will degrade Type II coatings (see 1.2).
IIa	With yellow to bronze color supplementary chromate coating.	Delay the appearance of white corrosion products. Increase total corrosion protection.
IIb	With brown to olive drab color supplementary chromate coating.	Greater corrosion resistances than IIa. To provide a match to military equipment.
IIc	Type IIa, dyed.	Color coding Decorative purposes
IId	Type IIa with an added lubricant or organic finish (oil, wax, lacquer, etc.)	Lubricity Maximum corrosion resistance