



Designation: B 635 – 91 (Reapproved 1997)

Standard Specification for Coatings of Cadmium-Tin Mechanically Deposited¹

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1. Scope

1.1 This specification covers the requirements for a coating that is a mixture of cadmium and tin mechanically deposited on metal products. The coating is provided in various thicknesses up to and including 12 μm.

1.2 Mechanical deposition greatly reduces the risk of hydrogen embrittlement and is suitable for coating bores and recesses in many parts that cannot be conveniently plated electrolytically. (See Appendix X1.)

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 establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For specific hazards statements, see Section 7.

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 201 Practice for Testing Chromate Coatings on Zinc and Cadmium Surfaces³
- B 242 Practice for Preparation of High-Carbon Steel for Electroplating³
- B 322 Practice for Cleaning Metals Prior to Electroplating³
- 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 567 Test Method for Measurement of Coating Thickness by the Beta Backscatter Method³
- B 571 Test Methods for Adhesion of Metallic Coatings³
- B 602 Test Method for Attribute Sampling of Metallic and Inorganic Coatings³

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

E 87 Methods for Chemical Analysis of Lead, Tin, Antimony, and Their Alloys (Photometric Methods)⁴

E 396 Test Methods for Chemical Analysis of Cadmium⁵

2.2 U.S. Federal Standard:

FED-STD-141 Paint, Varnish, Lacquer, and Related Materials; Methods of Inspection, Sampling and Testing⁶

2.3 U.S. Military Standard:

MIL-L-7808J Lubricating Oil, Aircraft Turbine Engine, Synthetic Base⁶

3. Classification

3.1 *Classes*—Cadmium-tin coatings are classified on the basis of thickness, as follows:

Class	Minimum Thickness, μm
12	12
8	8
5	5

3.2 *Types*—Cadmium-tin coatings are identified by types on the basis of supplementary treatment required, as follows:

3.2.1 *Type I*—As coated, without supplementary chromate treatment (see X1.1).

3.2.2 *Type II*—With supplementary chromate treatment (see X1.2).

4. Ordering Information

4.1 To make the application of this specification complete, the purchaser needs to supply the following information to the supplier in the purchase order or other governing document:

4.1.1 Class, including a maximum thickness, if appropriate, type, and need for supplemental lubricant (3.1, 3.2, and 5.2.4.2).

4.1.2 Nature of substrate, for example, high-strength steel, need for stress-relief, and cleaning precautions to be followed (5.2.2).

4.1.3 Significant surfaces (5.3).

4.1.4 Requirements and methods of testing for one or more of the following requirements: need for and type of test specimens (8.1), composition (8.2), thickness (8.4), adhesion

¹ This specification is under the jurisdiction of ASTM Committee B-8 on Metallic and Inorganic Coatings and is the direct responsibility of Subcommittee B08.04 on Soft Metals.

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² *Annual Book of ASTM Standards*, Vol 03.02.

³ *Annual Book of ASTM Standards*, Vol 02.05.

⁴ Discontinued—See 1984 *Annual Book of ASTM Standards*, Vol 03.05.

⁵ *Annual Book of ASTM Standards*, Vol 03.05.

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