



Standard Specification for Cadmium or Zinc Chromate Organic Corrosion Protective Coating for Fasteners¹

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1. Scope

1.1 This specification covers the basic performance requirements for an electrolytic or mechanical coating of cadmium or zinc followed by a chromate and baked organic coating for ferrous and nonferrous fasteners.

1.2 There are eight grades available under this standard; four for zinc and four for cadmium.

1.3 This standard is intended primarily for fasteners such as nuts, bolts, and screws that require corrosion protection.

2. Referenced Documents

2.1 ASTM Standards:

B 117 Test Method of Salt Spray (Fog) Testing²

B 244 Test Method for Measurement of Thickness of Anodic Coatings on Aluminum and of Other Nonconductive Coatings on Nonmagnetic Basis Metals with Eddy-Current Instruments³

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

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

B 633 Specification for Electrodeposited Coatings of Zinc 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

D 3359 Test Method for Measuring Adhesion by Tape Test⁴

F 871M Specification for Electrodeposited Coatings on Threaded Components [Metric]⁵

F 1470 Guide for Fastener Sampling for Specified Mechanical Properties and Performance Inspection⁵

F 1940 Test Method for Process Control Verification to

Prevent Hydrogen Embrittlement in Plated or Coated Fasteners⁵

3. Classification

3.1 These coatings are classified into eight grades according to the requirements shown in Table 1.

4. Ordering Information

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

4.1.1 Quantity of parts.

4.1.2 Grade required (see 3.1) and color code (see 5.4).

4.1.3 Any conditions or additions agreed upon by the purchaser and the supplier.

5. Requirements

5.1 Parts supplied to this specification shall have a chromate coating plus an organic coating applied to maintain adequate salt spray protection. The coatings shall not chip, leach color, or suffer color loss.

5.2 Substrate shall be either ferrous or nonferrous metal fasteners.

5.3 The finish shall be a cured organic coating.

5.4 The appearance shall be either CLEAR (Color code A) or BLACK (Color code B). Other colors may be specified by the purchaser.

5.5 The gloss shall be described as medium.

5.6 The film properties shall have sufficient hardness through curing at time of delivery to withstand normal handling and shipping without marring.

5.7 *Coating Thickness Measurement*—The thickness shall be determined by the method described in 8.1 and meet the requirements of Table 1.

5.8 *Organic Coating Determination*—Any part with the coating applied and properly cured shall exhibit no discoloration after soaking in a 5 % trisodium phosphate solution for 5 min at room temperature, water rinsed, towel dried, and subjected to 1 to 2 drops of a 5 % lead acetate solution on the surface for 60 s. Those parts lacking both an organic and chromate coating will have a color change after about 5 s.

5.9 *Adhesion*—Parts heated to 190°C for 30 min shall not exhibit blistering, peeling, flaking, or plating which can be

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

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

⁴ *Annual Book of ASTM Standards*, Vol 06.01.

⁵ *Annual Book of ASTM Standards*, Vol 01.08.