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Standard Specification for Cadmium or Zinc Chromate Organic Corrosion Protective Coating for Fasteners[1]

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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) Testing[2]

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 Instruments[3]

B 487 Test Method for Measurement of Metal and Oxide Coating Thickness by Microscopical Examination of a Cross Section[3]

B 499 Test Method for Measurement of Coating Thickness by the Magnetic Method: Nonmagnetic Coatings on Magnetic Basis Metals[3]

B 633 Specification for Electrodeposited Coatings of Zinc on Iron and Steel[3]

B 695 Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel[3]

B 696 Specification for Coatings of Cadmium Mechanically Deposited[3]

D 3359 Test Method for Measuring Adhesion by Tape Test[4]

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

F 1470 Guide for Fastener Sampling for Specified Mechanical Properties and Performance Inspection[5]

F 1940 Test Method for Process Control Verification to Prevent Hydrogen Embrittlement in Plated or Coated Fasteners[5]

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

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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.