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Endorsed by American
Electroplaters' Society
Endorsed by National
Association of Metal Finishers

Standard Practice for Testing Chromate Coatings on Zinc and Cadmium Surfaces¹

This standard is issued under the fixed designation B201; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

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

^{ε1} NOTE—The units statement in subsection (1.4) was inserted editorially in January 2010.

1. Scope

1.1 This practice covers a procedure for evaluating the protective value of chemical and electrochemical conversion coatings produced by chromate treatments of zinc and cadmium surfaces.

1.2 The protective value of a chromate coating is usually determined by salt-spray test and by determining whether or not the coating possesses adequate abrasion resistance.

1.3 Other methods, such as exposure to a humidity environment, can be used, but are generally of too long a duration to be of practical value. "Steam Tests" using pressure cookers have also been used for testing chromate films on hot-dip galvanized surfaces.

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

1.5 *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:*²
B117 Practice for Operating Salt Spray (Fog) Apparatus

3. Terminology

- 3.1 *Definitions of Terms Specific to This Standard:*

¹ This practice is under the jurisdiction of ASTM Committee B08 on Metallic and Inorganic Coatings and is the direct responsibility of Subcommittee B08.07 on Conversion Coatings.

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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.

3.1.1 *time to failure*—time to failure will depend on the type of coating tested. A list of some expected protective values obtainable in a given salt spray test is shown in **Appendix X2**.

3.1.1.1 *Discussion*—In most instances, failure is defined as the first appearance on significant surfaces of white corrosion products visible to the unaided eye at normal reading distance, except that the presence of white corrosion products at sharp edges (for example, on threaded fasteners) and at junctions between dissimilar metals should not be considered failure. In some instances, it may be desirable to regard the first appearance of red rust as failure.

3.1.2 *significant surfaces*—in general, significant surfaces are those surfaces that are visible and subject to corrosion or wear, or both, except that surfaces that are normally difficult to coat by electroplating or mechanical deposition may be exempt. The designation of significant surfaces may be indicated on the drawing.

4. Significance and Use

4.1 This practice is applicable to chromate coatings of the colorless (both one and two-dip), iridescent yellow or bronze, olive drab, black, colorless anodic, yellow or black anodic types, and of the dyed variety, when applied to surfaces of electrodeposited zinc, mechanically deposited zinc, hot-dipped zinc, rolled zinc, electrodeposited cadmium, mechanically deposited cadmium, and zinc die castings.

NOTE 1—Colorless coatings are also referred to as clear-bright or blue-bright coatings.

4.2 Because of variables inherent in the salt-spray test, which may differ from one test cabinet to another, interpretation of test results for compliance with expected performance should be specified by the purchaser.

4.3 Properties such as thickness, color, luster, and ability to provide good paint adhesion are not covered in this practice, nor are the chemical composition and the method of application of these finishes.