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

Standard Test Method for Measurement of Stain Resistance of Anodic Coatings on Aluminum¹

This standard is issued under the fixed designation B136; 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 U.S. Department of Defense.

1. Scope*

1.1 This test method is intended to determine whether anodic oxide coatings on aluminum and its alloys, that have undergone a sealing treatment and contact with an acid solution, are stainproof or nonadsorptive with respect to dyes.

1.2 Coatings that have been properly sealed should be proof against adsorption of coloring materials and, hence, “nonstaining” in many types of service.

1.3 This test method is applicable to anodic coatings intended for applications where they are exposed to the weather, or for protective purposes in corrosive media, and where resistance to staining is important.

NOTE 1—Performance in this test is predictive only of susceptibility to stain by dyes. It is not intended to be predictive of other factors in service performance such as pitting or general corrosion.

NOTE 2—For Aluminum Association Class I and II architectural anodic coatings that are sealed in solutions containing less than 15 ppm silicates or 3 ppm phosphates, the acid pretreatment may be omitted.

1.4 In the case of coatings colored in deep shades, where estimation of the intensity of any residual dye stain is difficult, interpretation of the test is based on whether or not the original color has been affected by the action of the test.

1.5 This test method is not applicable to:

1.5.1 Chromic acid type anodic coatings.

1.5.2 Anodic coatings on aluminum alloys containing more than 2 mass % Cu or 4.5 mass % Si.

1.5.3 Anodic coatings that have been sealed only in dichromate solutions.

1.5.4 Anodic coatings that have undergone a treatment to render them hydrophobic.

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

1.7 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.8 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Summary of Test Method

2.1 The test method depends upon the observation that a nonsealed or poorly sealed anodic coating is attacked by acid and easily colored by dye, while an adequately sealed coating is not appreciably attacked and does not retain any dye stain.

2.2 The test method comprises contacting the test area of the anodized specimen with nitric acid solution and, after rinsing and drying, applying a special dye solution followed by rinsing and rubbing the test area with pumice powder, drying, and visual examination of the test area for retention of dye stain. Coatings that exhibit no dye stain or change in color are considered to have passed the test.

3. Significance and Use

3.1 This test method is intended to determine whether anodic oxide coatings on aluminum and its alloys have been properly sealed and as a result are resistant to absorbing dyes.

¹ This test method 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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*A Summary of Changes section appears at the end of this standard