Designation: B580 – 79 (Reapproved 2019)

Standard Specification for Anodic Oxide Coatings on Aluminum[1]

This standard is issued under the fixed designation B580; 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 specification covers requirements for electrolytically formed porous oxide coatings on aluminum and aluminum alloy parts in which appearance, abrasion resistance, electrical properties, and protection against corrosion are important. Nonporous, barrier layer anodic coatings used for electrical capacitors are not covered. Seven types of coatings as shown in Table 1 are provided. Definitions and typical examples of service conditions are provided in Appendix X1.

NOTE 1—It is recognized that uses exist in which modifications of the coatings covered by this specification may be required. In such cases the particular properties desired by the purchaser should be the subject of agreement between the purchaser and the manufacturer.

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

1.3 *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. Referenced Documents

2.1 *ASTM Standards:*[2]

B110 Method for Testing Dielectric Strength of Anodically Coated Aluminum (Withdrawn 1982)[3]

B117 Practice for Operating Salt Spray (Fog) Apparatus

B136 Method for Measurement of Stain Resistance of Anodic Coatings on Aluminum

B137 Test Method for Measurement of Coating Mass Per Unit Area on Anodically Coated Aluminum

B244 Test Method for Measurement of Thickness of Anodic Coatings on Aluminum and of Other Nonconductive Coatings on Nonmagnetic Basis Metals with Eddy-Current Instruments

B368 Test Method for Copper-Accelerated Acetic Acid-Salt Spray (Fog) Testing (CASS Test)

B457 Test Method for Measurement of Impedance of Anodic Coatings on Aluminum

B487 Test Method for Measurement of Metal and Oxide Coating Thickness by Microscopical Examination of Cross Section

B538 Method of FACT (Ford Anodized Aluminum Corrosion Test) (Withdrawn 1986)[3]

B602 Test Method for Attribute Sampling of Metallic and Inorganic Coatings

D658 Test Method for Abrasion Resistance of Organic Coatings by Air Blast Abrasive (Withdrawn 1996)[3]

E429 Test Method for Measurement and Calculation of Reflecting Characteristics of Metallic Surfaces Using Integrating Sphere Instruments (Withdrawn 1996)[3]

E430 Test Methods for Measurement of Gloss of High-Gloss Surfaces by Abridged Goniophotometry

2.2 *Other Standards:*[4]

MIL-STD-105 Sampling Procedures and Tables for Inspection by Attributes

MIL-STD-414 Sampling Procedures and Tables for Inspection by Variables for Percent Defective

3. Manufacture

3.1 Defects in the surface of the basis metal, such as scratches, porosity, inclusions, roll and die marks, cold shuts, and cracks, will adversely affect the appearance and performance of applied coatings despite the observance of best anodizing practices. Accordingly, defects in the coating that result from such conditions shall not be cause for rejection.

NOTE 2—To minimize problems of this sort, the specifications covering the basis material or the item to be anodized should contain appropriate

[1] This specification 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] The last approved version of this historical standard is referenced on www.astm.org.

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