Designation: D 480 – 88 (Reapproved 1999)

Standard Test Methods for Sampling and Testing of Flaked Aluminum Powders and Pastes[1]

This standard is issued under the fixed designation D 480; 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.

1. Scope

1.1 These test methods cover procedures for sampling, qualitative analysis, and physical testing of flaked aluminum powders and pastes (leafing and nonleafing) for coatings.

1.2 These test methods apply equally to leafing and nonleafing flaked aluminum powders and pastes except where noted to the contrary.

1.3 *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.* For a specific hazard statement, see Note 1.

2. Referenced Documents

2.1 *ASTM Standards:*

D 185 Test Methods for Coarse Particles in Pigments, Pastes, and Paints[2]

D 235 Specification for Mineral Spirits (Petroleum Spirits) (Hydrocarbon Drycleaning Solvent)[3]

D 329 Specification for Acetone[3]

D 962 Specification for Aluminum Powder and Paste Pigments for Paints[2]

D 3980 Practice for Interlaboratory Testing of Paint and Related Materials[4]

E 11 Specification for Wire-Cloth Sieves for Testing Purposes[5]

E 34 Test Methods for Chemical Analysis of Aluminum and Aluminum Alloys[6]

E 607 Test Method for Optical Emission Spectrometric Analysis of Aluminum and Aluminum Alloys by the Point-to-Plane Technique, Nitrogen Atmosphere[7]

E 691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method[8]

3. Significance and Use

3.1 Flaked aluminum pigments are produced in a variety of forms. These test methods allow the user to determine the applicability of a given product to this use.

4. Sampling

4.1 Sampling is subject to mutual agreement between the seller and the purchaser. Place each sample in a clean, dry metal or glass container which shall be nearly filled, then close with a tight cover, seal, mark, and send to the laboratory for testing.

4.2 When requested, duplicate samples may be taken from the same container and delivered to the seller, and the inspector may take a third set of samples to hold for test in case of disagreement.

5. Qualitative Analysis

5.1 *Significance and Use*—This test method determines if there are chemical impurities, other than fatty and oily matter, as specified in Specification D 962, to ensure the absence of fillers or extender pigments.

5.2 *Procedure*:

5.2.1 *Total Impurities*—Determine the total impurities by weight in accordance with Test Methods E 34 and E 607 or by atomic absorption.

5.2.2 *Total Aluminum*—Determine the total aluminum by weight difference with elemental impurities in accordance with 5.2.1.

6. Leafing Properties

6.1 The leafing test conditions specified are selected arbitrarily, and even though the numerical leafing value obtained by this test method appears to be low, the pigment may give substantially perfect leafing under the conditions of practical application in a paint.

6.2 *Significance and Use*—This leafing test method has been established to determine the percent of leafed aluminum flakes at the surface of a simulated paint formula to ensure a bright metallic luster. Minimum leafing characteristics must

[1] These test methods are under the jurisdiction of ASTM Committee D-1 on Paint and Related Coatings, Materials, and Applications, and is the direct responsibility of Subcommittee D01.31 on Pigment Specifications.

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[2] *Annual Book of ASTM Standards*, Vol 06.03.

[3] *Annual Book of ASTM Standards*, Vol 06.04.

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

[5] *Annual Book of ASTM Standards*, Vol 14.02.

[6] *Annual Book of ASTM Standards*, Vol 03.05.

[7] *Annual Book of ASTM Standards*, Vol 03.06.

[8] *Annual Book of ASTM Standards*, Vol 14.02.