



Designation: D 718 – 86 (Reapproved 1999)

## Standard Test Methods for Analysis of Aluminum Silicate Pigment<sup>1</sup>

This standard is issued under the fixed designation D 718; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 These test methods cover the analysis of aluminum silicate pigment.

1.2 *This standard does not purport to address the safety concerns 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:

D 234 Specification for Raw Linseed Oil<sup>2</sup>

D 280 Test Methods for Hygroscopic Moisture (and Other Matter Volatile Under the Test Conditions) in Pigments<sup>3</sup>

D 717 Test Methods for Analysis of Magnesium Silicate Pigment<sup>2</sup>

D 1193 Specification for Reagent Water<sup>3</sup>

D 1208 Test Methods for Common Properties of Certain Pigments<sup>2</sup>

D 2448 Test Methods for Water-Soluble Salts in Pigments by Measuring the Specific Resistance of the Leachate of the Pigment<sup>2</sup>

E 11 Specification for Wire-Cloth Sieves for Testing Purposes<sup>4</sup>

### 3. Significance and Use

3.1 These test methods may be used to confirm the stated aluminum oxide and SiO<sub>2</sub> content of aluminum silicate for quality control.

### 4. Apparatus

4.1 *Platinum Crucible.*

4.2 *Electric furnace* (or gas burner), capable of 1050 to 1100°C.

4.3 *Volumetric flask*, 100 and 250 mL.

4.4 *Colorimeter*, with transmission range from 400 to 550 nm.

4.5 *High Silica Crucible.*

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

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 06.03.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 11.01.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 14.02.

### 5. Purity of Reagents

5.1 Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society,<sup>5</sup> where such specifications are available. Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

5.2 Unless otherwise indicated, references to water shall be understood to mean Type II of Specification D 1193.

### SILICON DIOXIDE

### 6. Procedure

6.1 Determine the silicon dioxide content in accordance with Test Methods D 717.

### ALUMINUM OXIDE

### 7. Reagents

7.1 *Ammonium Acetate* (20 %)—Dissolve 200 g of ammonium acetate (NH<sub>4</sub>C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>) in 1 L of distilled water.

7.2 *Ammonium Chloride Solution* (20 g/L)—Dissolve 20 g of ammonium chloride (NH<sub>4</sub>Cl) in water and dilute to 1 L.

7.3 *Ammonium Hydroxide* (sp gr 0.90)—Concentrated ammonium hydroxide (NH<sub>4</sub>OH).

7.4 *Diphenylamine Indicator Solution* (1 g/100 mL)—Dissolve 1 g of diphenylamine in 100 mL of concentrated sulfuric acid (H<sub>2</sub>SO<sub>4</sub>, sp gr 1.84).

7.5 *Hydrochloric Acid* (sp gr 1.19)—Concentrated hydrochloric acid (HCl).

7.6 *Hydrochloric Acid* (1+3)—Mix 1 volume of concentrated HCl (sp gr 1.19) with 3 volumes of water.

7.7 *Hydrofluoric Acid* (48 %)—Concentrated hydrofluoric acid (HF).

7.8 *Hydrogen Peroxide* (H<sub>2</sub>O<sub>2</sub>, 3 %, freshly prepared)—Mix 1 volume of H<sub>2</sub>O<sub>2</sub> (30 %) with 9 volumes of distilled water.

7.9 *Hydroxylamine Hydrochloride* (10 %)—Dissolve 10 g

<sup>5</sup> *Reagent Chemicals, American Chemical Society Specifications*, American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see *Analar Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmacopeial Convention, Inc. (USPC), Rockville, MD.