Designation: D 719 – 91 (Reapproved 1999)

Standard Test Methods for Analysis of Diatomaceous Silica Pigment[1]

This standard is issued under the fixed designation D 719; 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.

1. Scope

1.1 These test methods cover the analysis of diatomaceous silica pigment.

1.2 *This standard does not purport to address 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:*

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

D 234 Specification for Raw Linseed Oil[2]

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

D 280 Test Methods for Hygroscopic Moisture (and Other Matter Volatile Under the Test Conditions) in Pigments[2]

D 1208 Test Methods for Common Properties of Certain Pigments[2]

3. Significance and Use

3.1 These test methods are used to determine the purity and some physical properties of diatomaceous silica pigment. The information is significant to pigment producers and coatings manufacture.

MOISTURE AND OTHER VOLATILE MATTER

4. Procedure

4.1 Determine the moisture and other volatile matter by Test Methods D 280.

LOSS ON IGNITION

5. Procedure

5.1 Determine the loss on ignition in accordance with Test Methods D 1208.

MATTER SOLUBLE IN HYDROCHLORIC ACID

6. Procedure

6.1 Transfer about 2 g (weighed to 0.1 mg) of the dried material (Section 3) to a 150-mL flask or beaker. Add 45 mL of hydrochloric acid (HCl, 1 + 2) and boil for 5 min. Add 50 mL of water and boil for 5 min. Filter through a previously dried and weighed Gooch crucible. Wash the insoluble residue on the filter with hot water until free of chlorides and then with methanol. Dry the crucible and contents at 105 ± 2°C for 2 h.

7. Calculation

7.1 Calculate the percent of matter soluble in HCl as follows:

$$\text{Matter soluble in HCl, \%} = [(S - R)/S] \times 100 \quad (1)$$

where:

S = sample used, g, and

R = residue, g.

VOLUME OF SETTLING IN PETROLEUM SPIRITS

8. Procedure

8.1 Transfer 3 g of the sample to a 100-mL, glass-stoppered, graduated cylinder. Add mineral spirits, conforming to Specification D 235 until a total volume of 100 mL is obtained. Disperse the mixture by inverting the cylinder 50 times, and then allow to stand for 1 h. Read the volume of the settled pigment.

COLOR

9. Standard Pigments

9.1 *Standard Extender Pigment.*

9.2 *Standard Zinc Oxide.*

10. Procedure

10.1 Carefully weigh out the proportions of the standard extender pigment and standard zinc oxide mutually agreed upon, and rub up to a fairly stiff paste with a glass muller on a glass plate or stone slab with raw linseed oil conforming to Specification D 234. Note the volume of oil required. Prepare a similar paste with the sample, using the same weight of pigment, volume of oil, and number of strokes of the glass muller as used in the preparation of the paste of the standard pigments. Spread the pastes adjacently on a microscope slide,

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

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

draw a scraper lightly across them so as to present them on an even plane, and judge the color immediately.

COARSE PARTICLES

11. Procedure

11.1 Determine the percent of coarse particles in accordance with Test Methods D 185.

12. Precision and Bias

12.1 Precision and bias for these test methods have not been determined.

13. Keywords

13.1 diatomaceous silica pigment; analysis of; pigment; diatomaceous silica