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Standard Specification for Calcium Borosilicate Pigments¹

This standard is issued under the fixed designation D 4288; 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}Note—Keywords were added editorially in May 1996.~~

1. Scope

1.1 This specification covers three grades of pigment commercially known as calcium borosilicate composite pigment. The two types differ in chemical composition while the two classes of Type I differ in oil absorption.

2. Referenced Documents

2.1 ASTM Standards:²

- C 958 Test Method for Particle Size Distribution of Alumina or Quartz by X-Ray Monitoring of Gravity Sedimentation
- ~~D 185 Test Methods for Coarse Particles in Pigments, Pastes, and Paints—Test Methods for Coarse Particles in Pigments~~
- D 281 Test Method for Oil Absorption of Pigments by Spatula ~~Rub-Out~~ Rub-out
- D 1366 Practice for Reporting Particle Size Characteristics of Pigments
- D 3360 Test Method for Particle Size Distribution by Hydrometer of the Common White Extender Pigments
- D 4487 Test Methods for Analysis of Calcium Borosilicate

3. Composition and Properties

3.1 All types of pigment shall consist of a complex composite of alkaline earth silicates and borates and shall conform to the requirements of Table 1.

3.2 The mass color of the dry pigment is white. The shade and tinting strength when specified shall be equal to that of a reference sample mutually agreed upon between the purchaser and the seller.

3.3 Particle Size:

3.3.1 All types are characterized by major amounts of particles in the 1 to 10- μm range. Coarse particles retained on a 45- μm (No. 325) sieve shall be less than 0.3 %. The maximum specific surface diameter (SSD) shall be 2.5- μm .

3.3.2 Where closer control within a grade/class or type is required, the fineness requirements shall be as agreed upon between the purchaser and the seller.

4. Sampling

4.1 Two samples shall be taken at random from different packages from each lot, batch, day's pack, or other unit of production in a shipment. When no markings distinguishing between units of production appear, samples shall be taken from different packages, in the ratio of two samples for each 10 000 lb (5000 kg), except that for shipments of less than 10 000 lb two samples shall be taken. At the option of the purchaser, the samples may be tested separately or after blending in equal quantities the samples from the same production unit to form a composite sample.

5. Test Methods

5.1 Tests shall be conducted in accordance with the following ASTM test methods. Test procedures not covered by ASTM test methods shall be mutually agreed upon between the purchaser and the seller.

5.2 *Chemical Analysis*—Test Methods D 4487.

5.3 *Ignition Loss*—Test Methods D 4487.

¹This specification is 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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²For 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*, Vol 15.02, volume information, refer to the standard's Document Summary page on the ASTM website.