



Standard Test Methods for Common Properties of Certain Pigments¹

This standard is issued under the fixed designation D 1208; 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 determining certain properties of pigments. The procedures appear in the following order:

Dry Pigments	Sections
Loss on Ignition and Ash	4
Matter Soluble in Water	5
Hydrogen Ion Concentration (pH Value)	6
Alkalinity or Acidity by Titration	7 and 8
Water Content (Distillation Method)	9 and 10
Pigment Pastes in Oil	
Water Content (Distillation Method)	9 and 10
Pigment Content of Paste in Oil	11
Total Volatile Matter in Paste in Oil	12

1.2 *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.*

2. Referenced Documents

- 2.1 *ASTM Standards:*
D 95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation²
D 280 Test Methods for Hygroscopic Moisture (and Other Matter Volatile Under the Test Conditions) in Pigments³
D 1135 Test Methods for Chemical Analysis of Blue Pigments³
E 70 Test Method for pH of Aqueous Solutions with the Glass Electrode⁴

3. Significance and Use

3.1 This collection of test methods is used by pigment producers and paint manufacturers for process control, for product acceptance, and for research and development.

¹ 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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² *Annual Book of ASTM Standards*, Vol 05.01.

³ *Annual Book of ASTM Standards*, Vol 06.03.

⁴ *Annual Book of ASTM Standards*, Vol 15.05.

LOSS ON IGNITION AND ASH

4. Procedure

4.1 Dry about 5 g of the sample at $105 \pm 2^\circ\text{C}$ for 2 h. Transfer about 1 g of the dried pigment, weighed to 0.1 mg, to a previously ignited, weighed porcelain crucible, and ignite at 900 to 1000°C for 20 min. Cool in a desiccator and weigh. Heat again for 10 min at 900 to 1000°C to check the loss in weight.

4.2 *Calculation*—Calculate the percent of loss on ignition, L , and of ash, A , as follows:

$$L = \frac{L_w}{S_1} \times 100 \quad (1)$$

$$\left(A = \frac{W_a}{S_1} \times 100 \right)$$

where:

L_w = loss in weight on ignition, g,

A = ash, %,

W_a = weight of ash, g, and

S_1 = specimen weight, g.

MATTER SOLUBLE IN WATER

5. Procedure (Note 1)

5.1 Weigh about 10 g of the sample to 1 mg, and place in a 400-mL beaker. Add 100 mL of water (Note 2), boil for 5 min cool, and transfer quantitatively to a 250-mL volumetric flask. Dilute with water to 250 mL, mix, and allow to settle. Filter the supernatant liquid through a dry paper (Note 3) and discard the first 25 mL. Evaporate 100 mL of the clear filtrate to dryness in a weighed flatbottom dish, preferably in an oven at $105 \pm 2^\circ\text{C}$. Cool and weigh.

NOTE 1—This test method is not suitable for use with iron blue pigment. Use the conductivity method given in Test Methods D 1135.

NOTE 2—If the pigment is found to be strongly water-repellent, wet the sample with a small amount of alcohol or carry out a preliminary washing with chloroform.

NOTE 3—Water-dispersible pigments must be filtered with a suitable filter pad or the method may not be applicable.

5.2 *Calculation*—Calculate the percent of matter soluble in water, M , as follows:

$$M = \frac{R_1 \times 2.5}{S_2} \times 100 \quad (2)$$