



Standard Specification for Synthetic Red Iron Oxide Pigment¹

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1. Scope

1.1 This specification covers synthetic red iron oxide for use in paints and coatings manufactured by any of the following:

- 1.1.1 Calcination of iron salts.
- 1.1.2 Precipitation from iron salts.
- 1.1.3 Calcination of synthetic iron oxide.
- 1.1.4 Product of organic reduction.

2. Referenced Documents

2.1 *ASTM Standards:*

- D 50 Test Methods for Chemical Analysis of Yellow, Orange, Red, and Brown Pigments Containing Iron and Manganese²
- D 185 Test Methods for Coarse Particles in Pigments, Pastes, and Paints²
- D 280 Test Methods for Hygroscopic Moisture (and Other Matter Volatile Under the Test Conditions) in Pigments²
- D 387 Test Method for Color and Strength of Color Pigments with a Mechanical Muller³
- D 1208 Test Methods for Common Properties of Certain Pigments²

3. Composition and Properties

3.1 The pigment shall conform to the following requirements:

Fe ₂ O ₃ , min, %	93.0
Moisture and other volatile matter, max, %	1.0
Organic coloring matter	none
Total sulfates expressed as SO ₃ , max, %	2.0
Coarse particles (total residue retained on a 45-µm (No. 325) sieve) max, %	1.0
Matter soluble in water, max, %	0.2
pH value, min	5.0

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

³ *Annual Book of ASTM Standards*, Vol 06.01.

3.2 Inasmuch as iron oxide pigments are available in a range of colors, the mass color and, if desired by the purchaser, the character of the tint formed by mixture with a white pigment shall be within mutually agreed upon limits of a reference sample mutually agreed upon between the seller and the purchaser. This sample should be tested in accordance with Test Method D 387.

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.

5.1.1 *Total Iron Oxide, Sulfur, and Organic Coloring Matter*—Test Methods D 50.

5.1.2 *Moisture and Other Volatile Matter*—Test Methods D 280, Method A.

5.1.3 *Matter Soluble in Water*—Test Methods D 1208.

5.1.4 *Coarse Particles in Dry Pigments*—Test Methods D 185.

5.1.5 *pH Minimum*—Test Methods D 1208.

5.1.6 *Mass Color and Tinting Strength*—Test Method D 387.

6. Keywords

6.1 iron oxide; manganese; pigments

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