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AMERICAN SOCIETY FOR TESTING AND MATERIALS
100 Barr Harbor Dr., West Conshohocken, PA 19428
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Standard Specification for Raw and Burnt Umber Pigments[1]

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1. Scope

1.1 This specification covers the pigments commercially known as raw umber and burnt umber.

2. Referenced Documents

2.1 *ASTM Standards:*

D 50 Test Methods for Chemical Analysis of Yellow, Orange, Red, and Brown Pigments Containing Iron and Manganese[2]

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

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

D 387 Test Method for Color and Strength of Color Pigments with a Mechanical Muller[3]

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

3. Composition and Properties

3.1 *Dry Pigments*—The pigments shall conform to the following requirements:

3.1.1 *Raw Umber*—The pigment shall be in a soft, dry form and shall be a hydrated oxide of iron (together with such manganese that is naturally associated with it) permeating a siliceous base and shall be free of admixtures of other substances except carbon pigments. The pigment shall conform to the requirements for composition prescribed in Table 1.

3.1.2 *Burnt Umber*—The pigment shall be produced by the calcination of raw umber and shall be free of admixtures of other substances except carbon pigments. The pigment shall conform to the requirements for composition prescribed in Table 1.

3.2 *Paste in Oil*—For both raw and burnt umber, the paste in oil shall be made by thoroughly grinding the pigment with linseed oil (with or without a small amount of volatile thinner) together with (where necessary) small amounts of wetting or dispersing agents to produce a paste or semipaste of satisfactory consistency. As received, it shall not be caked in the container and shall break up readily in linseed oil to form a smooth paint of brushing consistency. It shall mix readily in all proportions, without curdling, with linseed oil, turpentine, or volatile petroleum spirits, or any mixture of these substances. The paste shall conform to the following requirements:

Pigment, min, %	55
Nonvolatile vehicle, min, %	80
Moisture by distillation, max, %	2.0
Coarse particles and skins (total residue retained on a No. 325 (45-μm sieve), max, % of dry pigment	1.0

3.3 The mass color and character of the tint and the tinting strength formed by a mixture with a white pigment shall be within mutually agreed upon limits of a standard acceptable to both the purchaser and the seller.

TABLE 1 Requirements for Composition of Raw and Burnt Umber

	Raw Umber	Burnt Umber
Iron oxide (Fe_2O_3), min, %	37	42
Calcium compounds (as CaO), max, %	5.0	5.0
Moisture and other volatile matter, max, %	5.0	5.0
Coarse particles (total residue retained on a No. 325 (45-μm) sieve), max, %	2.0	2.0
Organic colors, max, %	none	none

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 (4540 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 by the purchaser and the seller.

5.2 *Chemical Analysis of Dry Pigment*—Test Methods D 50.

5.3 *Moisture in Paste in Oil*—Test Method D 280, except that the sample shall be weighed instead of measured and the

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

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