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Standard Specification for Yellow Iron Oxide Hydrated[1]

This standard is issued under the fixed designation D 768; 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.

~~ε[1] NOTE—Keywords were added editorially in May 1995.~~

1. Scope

1.1 This specification covers the pigment commercially known as yellow iron oxide, hydrated.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

2. Referenced Documents

2.1 *ASTM Standards:* [2]

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

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

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

D 1208 Test Methods for Common Properties of Certain Pigments

3. Composition and Properties

3.1 The pigment shall be a manufactured yellow iron oxide obtained by chemical reaction. It shall be a soft, finely powdered pigment, free of admixtures of other substances and shall conform to the following requirements:

Total hydrated oxide of iron, min, %	93
Total oxide of iron,[A] min, %	83
Loss on ignition,[A] max, %	13
Moisture and other volatile matter, max, %	1.0
Water soluble matter, max, %	0.50
Coarse particles (total residue retained on a No. 325 (45-μm) sieve), max, %	0.5
Hydrogen ion concentration (pH value)	4.5 to 8.0

[A] Total hydrated oxide of iron shall be the sum of iron oxide and loss on ignition. Loss on ignition shall be calculated on the dry material.

3.2 *Paste in Oil*—The paste in oil shall be made by thoroughly grinding the specified 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 a semipaste or fluid type consistency. As received, it shall not be caked in the container and shall break up readily in oil to form a smooth paint of brushing consistency. It shall mix readily in all ~~p~~proportions, without curdling, with linseed oil, turpentine, or volatile petroleum spirits, or any mixtures of these substances. The paste shall conform to the following requirements:

Pigment, min, %	55
Nonvolatile vehicle, min, % of vehicle	80
Moisture by distillation, max, %	2.0
Coarse particles and skins (total residue retained on a No. 325 (45-μm) sieve), max, percent of the dry pigment	1.0
Consistency by the Stormer viscometer:	
At shearing rate of 100 revolutions/30 s, min, g	700[A]
At shearing rate of 100 revolutions/35 s, max, g	1200[B]

~~[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] For 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 06.03.~~volume information, refer to the standard's Document Summary page on the ASTM website.