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Standard Specification for Molybdate Orange Pigments¹

This standard is issued under the fixed designation D 2218; 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 to replace Method 7133 Federal Test Method Standard No. 141. Consult the DoD Index of Specifications and Standards for the specific year of issue which has been adopted by the Department of Defense.

^{ε1} NOTE—Keywords were added editorially in August 1996.

1. Scope

1.1 This specification covers the pigment known as molybdate orange.

1.2 The following hazard caveat applies to the test method portion of this specification only. *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 126 Test Methods for Analysis of Yellow, Orange, and Green Pigments Containing Lead Chromate and Chromium Oxide Green²
- D 185 Test Methods for Coarse Particles in Pigments, Pastes, and Paints²
- D 235 Specification for Mineral Spirits (Petroleum Spirits) (Hydrocarbon Dry Cleaning Solvent)³
- D 387 Test Method for Color and Strength of Color Pigments with a Mechanical Muller⁴
- D 523 Test Method for Specular Gloss⁴
- D 600 Specification for Liquid Paint Driers³
- D 822 Practice for Conducting Tests on Paint and Related Coatings and Materials Using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus⁴
- D 1210 Test Method for Fineness of Dispersion of Pigment-Vehicle Systems⁴
- E 97 Test Method for Directional Reflectance Factor,

TABLE 1 Requirements for Chemical Composition

	%	
	Min	Max
Chromium (calculated as PbCrO ₄)	70	...
Molybdenum (calculated as PbMoO ₄)	8	...
Total of all substances (including moisture and water soluble compounds) other than insoluble compounds of lead	...	12
Moisture and other volatile matter	...	1.5
Coarse particles (total residue retained on a 45- μ m (No. 325) sieve)	...	1.0
Matter soluble in water	...	1.0

- 45-deg 0-deg, of Opaque Specimens by Broad-Band Filter Reflectometry⁵
- 2.2 Federal Specification⁶
TT-R-266 Resin, Alkyd; Solutions

3. Composition and Properties

3.1 *Dry Pigment*—The pigment shall be a product made by the chemical coprecipitation of lead chromate and lead molybdate, with or without admixtures of other insoluble compounds of lead or other materials used in manufacture to control certain properties. The pigment shall conform to the requirements for chemical composition as prescribed in Table 1.

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

3.3 When mutually agreed upon between the purchaser and the seller as being essential to the end use of the pigment, resistance to loss of gloss, chalking, and color change shall be tested as specified in 5.1.6 The exposed panel shall show no chalking, a loss of not more than 10 % of the original gloss, and a color change difference of not more than three units.

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 06.04.

⁴ Annual Book of ASTM Standards, Vol 06.01.

⁵ Discontinued; See 1992 Annual Book of ASTM Standards, Vols 06.01 and 14.02.

⁶ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094.