



Designation: ~~D281~~—~~12~~ **D281 – 12 (Reapproved 2016)**

Standard Test Method for Oil Absorption of Pigments by Spatula Rub-out¹

This standard is issued under the fixed designation D281; 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 U.S. Department of Defense.

1. Scope*Scope

- 1.1 This test method covers the determination of the oil absorption of pigments by the spatula rub-out technique.
- 1.2 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.
- 1.3 *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:*²
[D1483 Test Method for Oil Absorption of Pigments by Gardner-Coleman Method](#)

3. Summary of Test Method

3.1 A stiff, putty-like paste is formed by the dropwise addition of linseed oil to pigment that is being thoroughly rubbed with a spatula. The amount of oil required to produce the end point is used to calculate an oil absorption value.

4. Significance and Use

4.1 The oil absorption value obtained by this test method gives information about the vehicle demand of the pigment when it is used in a pigment paste. Oil absorption values can be used to characterize pigments or batches of a given pigment.

4.2 This test method differs from Test Method [D1483](#) in that [D1483](#) involves only a gentle stirring and folding of the pigment, whereas this test method requires a thorough rubbing action. Because the end points are different, the values obtained from the two test methods generally differ.

5. Apparatus and Materials

- 5.1 *Balance*, capable of weighing to 0.001 g.
- 5.2 *Dropping Bottle*, fitted with ground-in pipet and rubber bulb *or* buret, graduated in 0.1-mL divisions.
- 5.3 *Smooth Glass Rub-up Plate or Marble Slab* (glass should have a surface similar to Hoover Muller Plates).
- 5.4 *Spatula*, sharp-edged, steel, having a blade of 15 or 20 mm by 100 mm ($\frac{1}{2}$ or $\frac{3}{4}$ by 4 in.).
- 5.5 *Oil*, linseed, raw, conforming to the following specification:

Specific Gravity
Boiling Point
Acid Number
Saponification Value
Iodine Value
Gardner Color

¹ This test method is under the jurisdiction of ASTM Committee [D01](#) on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee [D01.24](#) on Physical Properties of Liquid Paints and Paint Materials.

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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* volume information, refer to the [standard's Document Summary page](#) on the ASTM website.

*A Summary of Changes section appears at the end of this standard