



Designation: D 332 – 87 (Reapproved 1997)^{ε1}

Standard Test Method for Relative Tinting Strength of White Pigments by Visual Observation¹

This standard is issued under the fixed designation D 332; 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.

^{ε1} NOTE—Editorial changes were made throughout in September 1997.

1. Scope

1.1 This test method describes the procedure for determining the relative tinting strength of white pigments by visual assessment of blue tints.

1.2 This test method is applicable only for comparing the test pigment with a reference standard of the same type and grade.

NOTE 1—ASTM Test Method D 2745 describes a procedure for instrumental evaluation of black tinted samples.

1.3 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.4 *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 262 Specification for Ultramarine Blue Pigment²

D 2745 Test Method for Relative Tinting Strength of White Pigments by Reflectance Measurements³

3. Summary of Test Method

3.1 Specified amounts of white pigment and blue tinting pigment are dispersed together in oil using a glass hand muller or an automatic muller. Both the test and standard pigments are treated identically. The pastes are drawn-down together on a panel and visually assessed for tinting strength. To obtain a numerical rating of tinting strength, dispersions with the standard white pigment and more or less of the tinting pigment

are made until the lightness of the test pigment paste is matched. The weight of the tinting pigment is used to calculate relative tinting strength.

4. Significance and Use

4.1 This test method is used as a referee method and for quality control. The vehicle (oil) for preparing the dispersions and the tinting pigment (ultramarine blue) are specified but other vehicles and tinting pigments can be used. Any such changes in the test method must be agreed upon between the purchaser and the seller.

4.2 The results obtained with a muller do not necessarily agree with an industrial situation where different dispersing conditions exist. However, dispersing with a muller is a fast and relatively inexpensive way of testing tinting strength for routine quality control.

5. Apparatus

5.1 *Balance*, laboratory-type, sensitive to 0.1 mg, equipped with a counter-balanced watch glass.

5.2 *Buret*, 1-mL capacity, stopcock controlled, graduated in 0.1-mL divisions, or other suitable dispensing apparatus with a delivery accurate to 0.05 mL.

5.3 *Glass Hand Muller*—A weighted glass hand muller with beveled edge having a total weight of 15 lb (6.8 kg) and a grinding face of from 2¾ to 3 in. (70 to 75 mm) in diameter. The face shall be free of blowholes and other imperfections and kept roughened by lightly grinding with No. 303 optical emery, or its equivalent, and turpentine.

5.4 *Rubbing Surface*—A ground glass plate, at least 14 by 20 in. (355 by 510 mm), the surface of which is kept roughened by lightly grinding with No. 303 optical emery, or its equivalent, and turpentine.

5.5 *Automatic Muller*, automatic,⁴ equipped with a weight that exerts a permanent 50-lbf (220-N) force and an additional

¹ This test method is under the jurisdiction of ASTM Committee D-1 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.26 on Optical Properties.

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

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

⁴ The sole source of supply of the muller known to the committee at this time is Hoover Color Corp., P. O. Box 218, Hiwassee, VA 24347. If you are aware of alternative suppliers, please provide this information to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,¹ which you may attend.