



Designation: D2745 – 00 (Reapproved 2008)

# Standard Test Method for Relative Tinting Strength of White Pigments by Reflectance Measurements<sup>1</sup>

This standard is issued under the fixed designation D2745; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This test method describes the procedure for determining the relative tinting strength of white pigments by reflectance measurements of black 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—Test Method D332 describes a procedure for visual assessment of blue-tinted samples.

1.3 The values stated in SI 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:*<sup>2</sup>

D332 Test Method for Relative Tinting Strength of White Pigments by Visual Observation

D2244 Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates

## 3. Summary of Test Method

3.1 Pigment is dispersed in a vehicle and let down with additional vehicle that has been tinted. Dispersion and letdown are accomplished with a mechanical muller. Both the test and standard pigments are treated identically. Opaque drawdowns

<sup>1</sup> 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 D01.26 on Optical Properties.

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<sup>2</sup> 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.

are made of the paint and the  $Y$  tristimulus values (green-filter reflectance) of the wet films are measured. The relative tinting strength of the test pigment is calculated directly from the reflectance values.

## 4. Significance and Use

4.1 Tinting strength is one of the most important properties of a white pigment. This test method provides a means of testing this property for quality control.

4.2 This test method is a referee method, and the vehicle for preparing the dispersion and the black for tinting are suggested, but others may be used provided both the purchaser and the seller agree to the changes.

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

## 5. Apparatus and Materials

5.1 *Muller*, automatic, equipped with a weight that exerts a permanent 220-N (50-lbf) and an additional weight exerting a 50-lbf making a total of 445-N (100-lbf). The two glass plates shall be kept sharp by removing from the machine and grinding them face-to-face with No. 303 optical emery or equivalent, and water.

5.2 *Spatula*—A flexible spatula having a chromium-plated or plastic blade 75 to 150 mm (3 to 6 in.) long, and another with a 75 mm (3-in.) tapered blade.

5.3 *Balances*—(1) A balance sensitive to 20 mg and (2) an analytical balance sensitive to 0.4 mg.

5.4 *Vehicle*—Because the choice of vehicle may affect results, a solvent-free vehicle (excluding refined or low-bodied linseed oil) should be agreed upon by the purchaser and the seller.

5.5 *Tinting Black*—A lamp black predispersed in a vehicle similar in nature to the test vehicle. Tinting black should be agreed upon between the purchaser and the seller.

5.6 *Chart*—Either gray or white lacquered charts cut to a convenient size.