



Designation: D 1967 – 86 (Reapproved 1995)^{e1}

Standard Test Method for Measuring Color After Heating of Drying Oils¹

This standard is issued under the fixed designation D 1967; 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.

^{e1} NOTE—Unit of measurement statement and Keywords were added editorially in May 1995.

1. Scope

1.1 This test method covers the measurement of the color of drying oils after heating under specified conditions.

1.2 The values stated in SI units are to be regarded as the 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 whoever uses this standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 1544 Test Method for Color of Transparent Liquids (Gardner Color Scale)²

E 1 Specification for ASTM Thermometers³

3. Significance and Use

3.1 When oil is heated to polymerization temperature, some darkening may occur rendering the oil unsuitable for use where light color is essential. Excessive darkening may be an indication of residual soap content from the alkali refining process rendering the oil unsuitable for use where light color is essential.

3.2 Some oils that are low in soap content may actually bleach when heated to polymerization temperature, which is beneficial.

3.3 This test method is indicative of the color developed when the oil is heated to polymerization temperatures.

4. Apparatus

4.1 *Heater*⁴—A high-temperature gas burner or other suitable gas burner.

4.2 *Thermometer*—An ASTM Partial Immersion Thermometer having a range from –5 to +400°C (20 to 760°F) and conforming to the requirements for Thermometer 3F (3C) as prescribed in Specification E 1.

4.3 *Color Standards*—A set of permanent color standards as described in Test Method D 1544.

5. Procedure

5.1 Place 100 mL of the oil sample in a 250-mL heat-resistant Griffin low-form beaker on a ring stand with an asbestos wire pad. Immerse the thermometer in the center of the oil so that the end of the bulb is from ¼ to ⅝ in. (6 to 8 mm) from the bottom of the beaker. Heat to 550°F (288°C) in 5 to 10 min, and hold at this temperature ±5°F (±3°C) for 5 min. Remove the beaker from the stand and allow to cool to room temperature. Determine the color of the sample in accordance with Test Method D 1544.

6. Precision and Bias

6.1 *Precision*—The following criteria should be used for judging the acceptability of results at the 95 % confidence level.

6.1.1 *Repeatability*—Duplicate results by the same operator should be considered suspect if they differ by more than one-third color unit.

6.1.2 *Reproducibility*—Two results obtained in different laboratories should be considered suspect if they differ by more than two-thirds color unit.

NOTE 1—These precision statements are based on results obtained in a collaborative study involving six laboratories with two operators in each laboratory and four samples of drying oils.

6.2 *Bias*—Bias has not been determined.

7. Keywords

7.1 color after heating; drying oil color

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 D01.32 on Drying Oils.

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² *Annual Book of ASTM Standards*, Vol 06.01.

³ *Annual Book of ASTM Standards*, Vol 14.03.

⁴ The Fisher heater has been found satisfactory for this purpose.



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