Designation: D 1960 – 86 (Reapproved 1995)ε1

Standard Test Method for Loss on Heating of Drying Oils[1]

This standard is issued under the fixed designation D 1960; 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.

ε[1] NOTE—Keywords and an update statement on precision and bias were added editorially in May 1995.

1. Scope

1.1 This test method covers the determination of moisture and any other material that is volatile under the conditions of the test. It is applicable to all natural drying oils.

NOTE 1—For solutions of drying oils in volatile organic solvents it is recommended that Test Methods D 1259 or D 1644 be used.

1.2 *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.* Specific hazard statements are given in Section 5.

2. Referenced Documents

2.1 *ASTM Standards:*

D 1259 Test Methods for Nonvolatile Content of Resin Solutions[2]

D 1644 Test Methods for Nonvolatile Content of Varnishes[2]

3. Significance and Use

3.1 Drying oils may contain small amounts of residual extraction solvent, moisture or other volatile adulterants that might interfere with their use. This test method provides a means to measure the amount of volatile components at 105°C. Oxidation of the oil could cause a weight gain at this temperature, and this is minimized by blanketing the specimen with inert gas.

4. Apparatus and Materials

4.1 *Air Oven*, maintained at 105 ± 2°C.

4.2 *Desiccator*, containing efficient desiccant.

4.3 *Carbon Dioxide or Nitrogen Gas*, (**Warning**—see 5.1) under pressure in cylinders.

5. Hazards

5.1 *Carbon Dioxide and Nitrogen Gas*—Gas supplied in cylinders is dangerous because of its extremely high pressure. Take care to prevent damage to cylinders, valves, and pressure regulators. Consult supplier's Material Safety Data Sheet.

6. Procedure

6.1 Weigh 10 g of sample to 0.1 mg, into a tared 50-mL flask. Heat in an air oven at 105 ± 2°C for 30 min, while passing a gentle stream of carbon dioxide or nitrogen into the neck of the flask.

NOTE 2—Care must be taken to keep the surface of the oil blanketed with inert gas throughout the test to prevent oxidation of the oil.

6.2 Remove the flask from the oven, cool in a desiccator, and weigh to 0.1 mg.

7. Calculation

7.1 Calculate the percent loss on heating, L, as follows:

$$L = \frac{S - R}{S} \times 100$$

where:

S = specimen weight before heating, g, and

R = residue weight after heating, g.

8. Precision and Bias

8.1 Precision and bias have not been determined. This method has been in use for many years, and its usefulness has been well established.

9. Keywords

9.1 drying oils; drying oils; loss in heating; drying oils; volatiles

[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.

Current edition approved March 27, 1986. Published May 1986. Originally published as D 1960 – 61. Last previous edition D 1960 – 85.

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