



Standard Test Method for Iodine Value of Fatty Amines, Amidoamines, and Diamines¹

This standard is issued under the fixed designation D 2075; 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 approval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

This method was prepared jointly by the American Society for Testing and Materials and the American Oil Chemists' Society.

1. Scope

1.1 This test method (Note 1) covers the determination of the iodine value of fatty amines, diamines, and amidoamines by the Wijs procedure.

NOTE 1—This test method is essentially equivalent to Test Methods D 2078 and D 1959. Use of mercuric acetate permits reduced reaction time compared to Test Methods D 2078 (30 min) and D 1959 (1 h).

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.*

2. Referenced Documents

- 2.1 *ASTM Standards*:
 - D 1193 Specification for Reagent Water²
 - D 1541 Test Method for Total Iodine Value of Drying Oils and Their Derivatives³
 - D 1959 Test Method for Iodine Value of Drying Oils and Fatty Acids³
 - D 2078 Test Method for Iodine Value of Fatty Quaternary Ammonium Chlorides³

3. Terminology

3.1 Definition:

3.1.1 *iodine value*—a measure of the unsaturation of the alkyl group or groups, expressed in terms of percent iodine absorbed.

4. Significance and Use

4.1 This test method measures the unsaturation of the alkyl groups as iodine value by addition of an iodine/chlorine reagent.

4.2 Where no conjugated double bonds are present, the iodine value obtained is a measure of the total unsaturation, and the values obtained are useful for comparative purposes.

4.3 If conjugated unsaturation is known to be present, use Test Method D 1541.

5. Apparatus

5.1 *Bottles*—Glass-stoppered bottles or wide-mouth Erlenmeyer flasks of 500-mL capacity.

NOTE 2—Wide-mouth bottles or flasks are essential if stirring is done by mechanical means.

5.2 *Pipets*, 20 and 25-mL capacity.

6. Reagents

6.1 *Purity of Reagents*—Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available.⁴ Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

6.2 *Purity of Water*—Unless otherwise indicated, references to water shall be understood to mean reagent water conforming to Type II of Specification D 1193.

6.3 *Acetic Acid (Glacial)*—Verify the absence of substances reducing permanganate as follows: Dilute 2 mL of the acid with 10 mL of water and add 0.1 mL of 0.1 N potassium permanganate (KMnO₄) solution. The pink color should not be entirely discharged at the end of 2 h.⁵

6.4 *Chlorine (99.8 % Cl)*—Commercial grades of chlorine available in cylinders may be used, provided the gas is dried by

¹ This 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 15, 1992. Published May 1992. Originally published as D 2075 – 62. Last previous edition D 2075 – 89.

² *Annual Book of ASTM Standards*, Vol 11.01.

³ *Annual Book of ASTM Standards*, Vol 06.03.

⁴ *Reagent Chemicals, American Chemical Society Specifications*, American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see *Analar Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmacopeial Convention, Inc. (USPC), Rockville, MD.

⁵ "Analytical reagents, ACS Specifications," Am. Chemical Soc., Washington, DC, 1950.