Designation: D 2379 – 99

Standard Test Method for Acidity of Formaldehyde Solutions[1]

This standard is issued under the fixed designation D 2379; 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.

1. Scope

1.1 This test method covers the determination of the acidity of commercially available formaldehyde solutions.

1.2 For hazard information and guidance, see the supplier's Material Safety Data Sheet.

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 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 7.

2. Referenced Documents

2.1 *ASTM Standards:*

D 1193 Specification for Reagent Water[2]

D 2380 Test Method for Methanol Content of Formaldehyde Solutions[3]

E 200 Practice for Preparation, Standardization, and Storage of Standard and Reagent Solutions for Chemical Analysis[4]

3. Summary of Test Method

3.1 A specimen is titrated with standard alkali to the bromthymol blue end point.

4. Significance and Use

4.1 This test method provides a measurement of acidity (as formic acid) in formaldehyde solutions. The results of these measurements can be used for specification acceptance.

5. Apparatus

5.1 *Buret*, 25-mL, calibrated in 0.1-mL divisions. A TFE-fluorocarbon resin stopcock is suitable for this purpose.

6. Reagents and Materials

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.[5] 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 IV of Specification D 1193.

6.3 *Bromthymol Blue Indicator Solution* (1.0 g/L)—Dissolve 0.1 g of the water-soluble form of bromthymol blue indicator powder in 100 mL of water.

6.4 *Sodium Hydroxide, Standard Solution* (0.1 N)—Prepare and standardize 0.1 *N* sodium hydroxide (NaOH) solution as described in Practice E 200.

7. Hazards

7.1 Formaldehyde and formaldehyde solutions are hazardous and exposure to them should be minimized to avoid acute effects and possible sensitization. Consult your supplier's Material Safety Data Sheet for specific hazard information.

7.2 Sodium hydroxide solutions are corrosive and hazardous. Exercise steps to prevent contact with the skin or eyes. Consult supplier's Material Safety Data Sheet for specific hazard.

8. Procedure

8.1 Measure 50 mL of the sample into a 250-mL Erlenmeyer flask, add 3 or 4 drops of bromthymol blue indicator solution, and titrate with 0.1 *N* NaOH solution to a blue end point.

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[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 D01.35 on Solvents, Plasticizers, and Chemical Intermediates.

Current edition approved June 10, 1999. Published August 1999. Originally published as D 2379 – 65 T. Last previous edition D 2379 – 93.

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

[3] *Annual Book of ASTM Standards*, Vol 06.04.

[4] *Annual Book of ASTM Standards*, Vol 15.05.

[5] *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.