



Designation: D 2106 – 00

Standard Test Methods for Determination of Amine Acid Acceptance (Alkalinity) of Halogenated Organic Solvents¹

This standard is issued under the fixed designation D 2106; 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.

1. Scope

1.1 These test methods, where applicable, cover the determination of the acid acceptance of halogenated organic solvents due to the presence therein of an organic amine titratable by standard acid. These test methods are suitable for samples of 0.001 to 0.02 weight percent alkalinity as NaOH. Two test methods are covered as follows:

- 1.1.1 *Test Method A*— pH Method, and
- 1.1.2 *Test Method B*— Indicator Method.

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:

- E 70 Test Method for pH of Aqueous Solutions With the Glass Electrode²
- E 200 Practice for Preparation, Standardization, and Storage of Standard and Reagent Solutions for Chemical Analysis²

3. Terminology

3.1 Definition:

3.1.1 *amine acid acceptance*—the degree to which an organic amine present in the halogenated organic solvent is capable of absorbing or neutralizing acid generated by the solvent or introduced into it from an external source.

4. Significance and Use

4.1 This test method is useful for the determination of the amount of acid acceptance contributed by amines or bases as compared to other acid-accepting compounds.

5. Purity of Reagents

5.1 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.³ 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.

5.2 *Purity of Water*— Unless otherwise indicated, references to water shall be understood to mean distilled water or water of equal purity. Additional requirements are specified in 8.1 and 12.1.

TEST METHOD A—pH METHOD

6. Summary of Test Method

6.1 The amine acid acceptance of the halogenated organic solvent is determined, after extraction into a volume of water preadjusted to a pH of 3.9, by titrating with standard acid to a pH of 3.9. The extraction is performed either by stirring the immiscible liquids mechanically or by shaking the immiscible layers of liquids manually.

7. Apparatus

- 7.1 *pH Meter*, equipped with a pH indicating electrode and pH reference electrode or combination electrode.
- 7.2 *Stirrer*, electric stirring bar, air-driven or magnetic.

8. Reagents

8.1 *Water*—Adjust the pH of 1 L (or any convenient quantity) of water to 3.9. Boil 1 L of distilled water for 5 min in a borosilicate glass or stainless steel container, then cover and cool to room temperature. Titrate a 50-mL aliquot to a pH

¹ These test methods are under the jurisdiction of ASTM Committee D26 on Halogenated Organic Solvents and Fire Extinguishing Agents and are the direct responsibility of Subcommittee D26.04 on Test Methods.

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² *Annual Book of ASTM Standards*, Vol 15.05.

³ *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.