



Designation: D1613 – 06 (Reapproved 2012)

Standard Test Method for Acidity in Volatile Solvents and Chemical Intermediates Used in Paint, Varnish, Lacquer, and Related Products¹

This standard is issued under the fixed designation D1613; 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 This test method covers the determination of total acidity as acetic acid, in concentrations below 0.05 %, in organic compounds and hydrocarbon mixtures used in paint, varnish, and lacquer solvents and diluents. It is known to be applicable to such mixtures as low molecular weight saturated and unsaturated alcohols, ketones, ethers, esters, hydrocarbon diluents, naphtha, and other light distillate petroleum fractions.

1.2 For purposes of determining conformance of an observed value or a calculated value using this test method to relevant specifications, test result(s) shall be rounded off “to the nearest unit” in the last right-hand digit used in expressing the specification limit, in accordance with the rounding-off method of Practice E29.

1.3 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.4 For specific hazard information and guidance consult supplier’s Material Safety Data Sheet.

1.5 *This standard does not purport to address 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:*²

D770 Specification for Isopropyl Alcohol

D1193 Specification for Reagent Water

E200 Practice for Preparation, Standardization, and Storage

¹ This test method is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.35 on Solvents, Plasticizers, and Chemical Intermediates.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.

of Standard and Reagent Solutions for Chemical Analysis
E29 Practice for Using Significant Digits in Test Data to
Determine Conformance with Specifications

3. Summary of Test Method

3.1 The specimen is mixed with either an equal volume of water or an equal volume of alcohol, and titrated with aqueous sodium hydroxide solution to the phenolphthalein end point.

4. Significance and Use

4.1 This test method is useful for determining low levels of acidity, below 0.05 %, in organic compounds and hydrocarbon mixtures. The total acidity is calculated as acetic acid or milligrams of sodium hydroxide per gram of sample.

4.2 Acidity may be present as a result of contamination, decomposition during storage or distribution, or manufacture. This test method may be used in assessing compliance with a specification.

5. Apparatus

5.1 *Buret*, 10-mL, graduated in 0.05-mL subdivisions.

5.2 *Erlenmeyer Flask*, 250-mL capacity.

6. Purity of Reagents

6.1 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.

6.2 Unless otherwise indicated, references to water shall be understood to mean reagent water conforming to Type IV of Specification D1193.

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.

*A Summary of Changes section appears at the end of this standard