



Standard Test Method for Acid Number of Terephthalic Acid by Color-Indicator Titration¹

This standard is issued under the fixed designation D8032; 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 acid number of terephthalic acid (TA) by color-indicator titration. Acid number of TA product is usually within 674 to 676 mg KOH/g.

1.2 In determining the conformance of the test results using this method, results shall be rounded off in accordance with the rounding-off method of Practice E29.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *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:*²

D974 Test Method for Acid and Base Number by Color-Indicator Titration

D1193 Specification for Reagent Water

D4790 Terminology of Aromatic Hydrocarbons and Related Chemicals

D6809 Guide for Quality Control and Quality Assurance Procedures for Aromatic Hydrocarbons and Related Materials

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

E300 Practice for Sampling Industrial Chemicals

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

2.2 *Other Document:*³

OSHA Regulations, 29 CFR paragraphs 1910.1000 and 1910.1200

3. Terminology

3.1 *Definitions:*

3.1.1 *acid number, n*—the quantity of base, expressed in milligrams of potassium hydroxide per gram of sample that is required to titrate a sample in a specified solvent to a specified end point.

4. Summary of Test Method

4.1 A TA sample is dissolved in dimethyl sulfoxide and titrated with standard sodium hydroxide solution to the end point indicated by the color change of the added phenolphthalein solution (colorless in acid and pink in base). The acid number is calculated as milligrams of KOH per gram of TA sample. Its theoretical value of TA sample is 675.5 mg KOH/g.

5. Significance and Use

5.1 An estimate of TA purity can be determined by titrating with KOH. As an index of TA purity, the acid number can be used as a guide in the quality control of TA production.

6. Apparatus

6.1 *Analytical Balance*, capable of weighing ± 0.0001 g.

6.2 *Burets*, 50-mL with 0.1-mL graduations.

7. Reagents

7.1 *Purity of Reagents*—Unless otherwise indicated, it is intended that all reagents shall conform to the reagent grade specification of the Analytical Reagents of the American

¹ This test method is under the jurisdiction of ASTM Committee D16 on Aromatic Hydrocarbons and Related Chemicals and is the direct responsibility of Subcommittee D16.02 on Oxygenated Aromatics.

Current edition approved March 1, 2016. Published June 2016. DOI: 10.1520/D8032-16.

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.

³ Available from U.S. Government Printing Office, Superintendent of Documents, 732 N. Capitol St., NW, Washington, DC 20401-0001, <http://www.access.gpo.gov>.